

HOSPITAL READMISSIONS: THE NEED FOR A COORDINATED TRANSITIONAL  
CARE MODEL: ANALYSIS AND SYNTHESIS OF RESEARCH ON MEDICARE  
POLICY AND INTERVENTIONS FOR THE ELDERLY

Laura M. Wolfe

Dissertation Prepared for the Degree of  
DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

May 2012

APPROVED:

Stanley R. Ingman, Major Professor  
Keith Turner, Committee Member  
Thomas Evenson, Dean of the College of  
Public Affairs and Community  
Service  
James D. Meernik, Acting Dean of the  
Toulouse Graduate School

Wolfe, Laura M. Hospital Readmissions: The Need for a Coordinated Transitional Care Model: Analysis and Synthesis of Research on Medicare Policy and Interventions for the Elderly. Doctor of Philosophy (Applied Gerontology), May 2012, 102 pp., 10 tables, 7 figures, references, 86 titles.

The transition from hospital to home or alternate care setting is a time of vulnerability for all patients and particularly for our elders. If not handled appropriately there is a risk to our elders for readmission to the hospital environment that may decrease their overall quality of life and further compromise their health status. In addition to the individual risks associated with patient readmissions, there are societal impacts that reach far beyond our current generation of elders 65 and older. This impact may have dire implications for the future fiscal health of the next generation.

A review of the current and past literature shows that there are a limited number of resources available for hospitals to use in order to comply with the new Value Based Purchasing initiatives that are being implemented by CMS regarding the reduction in readmission rates. The problem of hospital readmissions is confounded by the many processes that are available for study, from pre-hospitalization conditions and care through hospitalization, discharge, and finally to post discharge processes. While most research and literature reviews have focused on individual disease causes, there is a need to provide hospitals with a resource that outlines the available options and interventions that have been shown to be effective in reducing hospital readmissions.

The purpose of this study is to review relevant literature related to the problem of hospital readmissions for our elder population. This study is designed to look at

interventions, both disease based and non-disease based, that have been previously implemented and have shown effective reductions in readmission rates.

This analysis and synthesis can provide an important contribution to our understanding of the factors and variables that influence the readmission rates of our elder population. This review has the potential to assist and direct hospital administrators and to discharge planners, social workers, and other health professions to implement intervention strategies that promote the continuing health status of our elder population while reducing their overall rates of readmissions.

Copyright 2012

by

Laura M. Wolfe

## ACKNOWLEDGEMENTS

I would like to thank my committee members Dr. Keith Turner and Dr. David Sanders for their support and assistance. In particular I would like to thank my committee chair, Dr. Stan Ingman, for his encouragement, support, ideas, prodding, and pushing throughout this process. Without his invaluable input I would never have completed my dissertation.

I would like to thank my family for their support and encouragement through this process. My heartfelt gratitude goes to my best friend Jennifer who without her continued belief in me and her words of inspiration I would never have achieved this goal. She believed in me when I didn't believe in myself and kept me moving forward throughout this whole process.

Lastly, I would like to thank the friends and faculty that have supported and inspired me with their passion and dedication to not only gerontology but to their pursuit of learning and creating movements toward change to better our society.

## TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS .....	iii
LIST OF TABLES .....	vii
LIST OF FIGURES .....	viii
CHAPTER 1 INTRODUCTION .....	1
Background .....	1
Problem Statement .....	4
Statement of Purpose .....	6
Significance .....	7
Theoretical Framework .....	8
Foucauldian Theory .....	8
Self Determination Theory .....	8
Stress and Coping Theory .....	9
Hypothesis .....	10
Definition of Terms .....	10
Summary .....	11
CHAPTER 2 METHODOLOGY .....	12
Study Design and Method .....	12
Variables .....	13
Dependent Variable .....	13
Independent Variables .....	17
Control Variables .....	17
Summary .....	17
CHAPTER 3 LITERATURE REVIEW .....	19
History of Medicare .....	21
Inpatient Prospective Payment System .....	22
Introduction of Quality .....	23
Affordable Care Act .....	24
Value Based Purchasing .....	25

Readmissions as a Measure of Quality of Care .....	27
Readmissions .....	28
Discharge Planning .....	35
Transitional Care .....	37
Combining the Two.....	39
Medication Reconciliation .....	40
Communication.....	41
Family/Caregiver/Social Support .....	42
Geography.....	43
Summary .....	44
<b>CHAPTER 4 ANALYSIS AND DISCUSSION OF THE RESULTS .....</b>	<b>46</b>
Interpretation of Findings and Discussion.....	46
Research Question 1: What are the Predictors of Hospital Readmissions? .....	46
Research Question 2: What are the Characteristics of Effective Interventions that Prevent Hospital Readmissions?.....	49
Discussion of Hypotheses .....	59
Hypothesis 1: Adequate Care Transition Process Will Decrease the Number of Readmissions.....	59
Hypothesis 2: Patient Follow-Up Will Decrease the Number of Hospital Readmissions .....	61
Hypothesis 3: Patient Transition to Post-Acute or Long-Term Skilled Nursing Care Will Reduce the Number of Hospital Readmissions.....	62
Hypothesis 4: Age and Increased Number of Comorbid Conditions Will Negatively Affect the Risk of Readmission .....	62
Summary .....	63
<b>CHAPTER 5 SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS .....</b>	<b>64</b>
Implications.....	65
Limitations of the Study .....	66
Recommendations.....	66
<b>CHAPTER 6 PROPOSED POLICY CHANGES AND FUTURE RESEARCH .....</b>	<b>68</b>
Proposed Policy Change .....	68

Background.....	68
Similarities and Differences between France (#1) v United States (#37).....	69
Current Demonstration Programs.....	73
Proposed Framework for Future Research .....	76
Assumptions of Proposed Framework.....	77
Conclusion.....	81
APPENDIX A MEASURES FOR HOSPITAL VALUE BASED PURCHASING.....	84
APPENDIX B MEDICARE DISCHARGE PLANNING .....	87
APPENDIX C MEDICATION DISCREPANCY TOOL.....	91
APPENDIX D ACRONYMS.....	93
REFERENCES.....	96



## LIST OF TABLES

	Page
1. Retrospective Literature Review.....	14
2. Prospective Intervention Studies.....	15
3. Variables .....	18
4. Readmission Rate for Disease Specific Causes.....	48
5. Care Transitions Intervention Activities by Stage of Intervention.....	52
6. Utilization and Cost outcomes for CTI*.....	53
7. Utilization and Cost Outcomes RED.....	54
8. Patient Comprehension RED .....	55
9. Readmission and Hospital Days 1 Year after Index Hospitalization Discharge ..	58
10. Cost Analysis 1 Year after Index Hospitalization .....	58

## LIST OF FIGURES

	Page
1. Baby Boomer population 1900 to projected 2050 (U.S. Census Bureau, 2002) .....	20
2. Population age 65 and over and age 85 and over, 1908-2008 and projected 2010-2050 (U.S. Census Bureau, 2008). ....	20
3. Medicare spending in 2008 (Medpac, 2010).....	21
4. Readmission rates by state (Miller & K., 2011).....	45
5. Percent distribution for population 65 years and older-2010 census (Hines, 2010). .....	45
6. Structure of the care transition intervention (Parry, Coleman, Smith, Frank, & Kramer, 2003).....	51
7. Hierarchal levels of need in healthcare.....	80

# CHAPTER 1

## INTRODUCTION

### Background

The United States has just passed a milestone with the first Baby Boomers turning 65 on January 1, 2011. When the last Baby Boomers turn 65 in 2030, it is projected that the older population will be twice as large as in 2000. This means that the elderly population will increase from 35 million to 72 million, which will represent 20% of the United States total population (He, Sengupta, Velkoff, & DeBarros, 2005). Not only is the Baby Boom generation contributing to this increase in the total number of older persons in the United States, the total percentage of the oldest old population (those 85 and older) has continued to double and triple over the past decade, and is expected to continue its upward trend rapidly after 2030 (He, Sengupta, Velkoff, & DeBarros, 2005). It is further projected that the number of centenarians (those 100 and older) will continue to increase from 68,000 in 2000 to 1.1 million by 2050 (Administration on Aging, 2001). The growth of our elder population and the rapid growth of the oldest old can be attributed, in part, to the continuing improvements in health care.

An impetus to the improvement and technological improvements we have seen in health care is due in part to the passage of Medicare in 1965. While partly a political move by President Lyndon B. Johnson, the result has been an increase in the total dollars spent on health care overall, with the United States government being the largest payer. These dollars have contributed to better care for all and particularly for our older population. The result of this better care has manifested in overall lower

mortality rates and increased life expectancy which has increased from 47.3 years in 1900 to 76.9 years in 2000, the latter being impacted by the reduction in mortality at older ages (He, Sengupta, Velkoff, & DeBarros, 2005). While we are living longer we are also experiencing and living with more chronic diseases than ever before that result in more hospitalization.

Medicare pays for all hospitalizations for qualified elders and hospital readmissions except for those that occur within 24 hours of discharge for the same condition. Recent approaches to improving Medicare and hospital quality have resulted in proposed policy changes that would create incentives and penalties to reduce hospital readmissions. The Centers for Medicare and Medicaid Services (CMS) are no longer a passive payer of medical care costs, but have been propelled into the role of active purchaser of medical care (Centers for Medicare and Medicaid Services, 2010; Klees, Wolfe, & Curtis, 2010) thanks in part to legislation which began with the Bush administration in 2003 with the passage of the Medicare Modernization Act and the Deficit Reduction Act and continuing to be refined and expanded during the current Obama administration with the passage of the Patient Protection and Affordable Care Act of 2010 as amended by the Health Care and Education Reconciliation Act of 2010 (collectively known as the Affordable Care Act).

The 2003 changes regarding hospital reporting on clinical quality measurements have become the backbone of the government strategy to drive quality improvements under the Affordable Care Act (ACA) with a penalty to non-reporting hospitals equaling 0.4% of their total DRG payments. In 2005 as part of the Deficit Reduction Act (DRA), the penalty for non-reporting of clinical quality measures was increased from 0.4% to

2.0%. The DRA further charged the secretary of Health and Human Services (HHS) with devising a plan for the adoption of a pay for performance (P4P) Medicare hospital reimbursement plan by 2009, amending its approach from a penalizing institution to a positive reward approach. (Tanenbaum, 2009).

In 2007, CMS provided its *Report to Congress: Plan to Implement a Medicare Hospital Value-Based Purchasing Program* (CMS 2007) as mandated by the DRA. As an active purchaser of healthcare, CMS has implemented value based purchasing (VBP) with the goal of being a catalyst for increased quality of care at a lower total cost (CMS, 2010). Among the goals that CMS has defined for the Medicare hospital VBP programs is to “reduce adverse events and improve patient safety” and “encourage patient-centered care” (CMS Hospital Pay-for-Performance Workgoup, 2007). The VBP initiative, as originally implemented, rewarded hospitals monetarily for providing data on hospital acquired conditions (HAC) (Averill, McCullough, Hughes, Goldfield, Vetrees, & Fuller, 2009). With the implementation of the Affordable Care Act, the Obama administration has proposed to redesign the Medicare inpatient prospective payment system (IPPS) to incorporate fee adjustments under the VBP, defined as pay for performance (P4P), based specifically on hospital readmission rates. The goal of this initiative is twofold: 1) to curb the increasing expenditures as our nation grows older, and 2) to improve the quality of care that our elders receive during hospitalizations. Improving the quality of care for our elder population will, it is predicted, also improve their health related quality of life. The Medicare hospital VBP builds upon the current Reporting Quality Data for Annual Payment Update (RHQDAPU), which has been collecting clinical quality measurement data and providing performance payments to

hospitals since fiscal year 2005 (CMS, 2010). All of this has been leading up to the magic date of October 1, 2012, fiscal year 2013, when the hospital value-based purchasing program will be fully implemented.

The recent and proposed change to the Medicare system of payments to hospitals illustrates the need to understand the differing factors that cause hospital readmissions. It is only through the understanding of these factors that reduction in readmissions can be achieved. A review of existing literature illustrates that the discussion of hospital readmissions is not a new issue: extensive research has been published on hospital readmission causes that are attributed to certain disease conditions, particularly heart failure and diabetes. There is also limited information available through literature review for non-disease factors that result in readmissions, for example, discharge planning and medication use. Differing opinions and findings highlight the fact that there is no consensus on the one factor or disease that can be pinpointed as the cause for the majority of readmissions that our elder population experiences. Because of this, there is a need to understand how each factor, whether disease or non-disease based, contributes to the problem of hospital readmission and by understanding the multiple causes, programs and interventions can be tailored to respond to this growing problem. This analysis will also assist hospitals and health care practitioners to improve their rates of readmissions and respond to Medicare's proposal of increasing quality health care for all.

#### Problem Statement

The transition from hospital to home or alternate care setting is a time of

vulnerability for all patients and particularly for our elders. If not handled appropriately there is a risk to our elders for readmission to the hospital environment that may decrease their overall quality of life and further compromise their health status. In addition to the individual risks associated with patient readmissions, there are societal impacts that reach far beyond our current generation of elders 65 and older. This impact may have dire implications for the future fiscal health of the next generation.

It is not known what the actual financial impact will be to the hospital industry when the redesigned IPPS of the VBP is fully implemented in fiscal year 2013. It has been suggested that Medicare may save up to 5% of its total current and future expenditures (Maryland Hospital Association, 2009). This 5% savings for Medicare conversely relates to a 5% reduction in hospital IPPS payments. However, not every hospital organization will experience a 5% reduction in earnings. Hospitals that demonstrate improved and sustained performance in the CMS VBP quality indicator areas may benefit from an increase in IPPS payments. Performance payments or penalties will be based on eighteen quality indicator measures in two domains: 1) clinical outcome and 2) patient experience (See Appendix A) (Centers for Medicare and Medicaid Services, 2011) including across both of these domains patient readmissions.

In 2003, 35 million people aged 65 and older received Part A Medicare benefits covering hospitalization costs (Hoffman Jr., Klees, & Curtis, 2004). Of those 35 million, 13,062,937 enrollees were discharged from 4926 hospitals nationwide (Jencks, Williams, & Coleman, 2009). Of those 13,062,937 hospital discharges, it is estimated that almost 20% (19.6%) will be readmitted to the hospital, typically through the emergency department (ED), within the first 30 days of discharge and 25% will return

within the first 90 days (Strunin, Stone, & Jack, 2007). While there is not one definitive cause to this high readmission rate, research has shown that almost 50% of patient readmissions are the result of avoidable and preventable errors (Foster, Murff, Peterson, Gandhi, & Bates, 2003). Among those avoidable and preventable errors are two causes that stand out-lack of consistent and effective discharge planning and patient follow up. These preventable errors have compounded and increased the Part A hospital inpatient medicare expenditures, which in 2009 reached \$239.3 billion (Klees, Wolfe, & Curtis, 2010).

A review of the current and past literature shows that there are a limited number of resources available for hospitals to use in order to comply with the new value based purchasing initiatives that are being implemented by CMS regarding the reduction in readmission rates. The problem of hospital readmissions is confounded by the many processes that are available for study, from pre-hospitalization conditions and care through hospitalization, discharge, and finally to post discharge processes. While most research and literature reviews have focused on individual disease causes, there is a need to provide hospitals with a resource that outlines the available options and interventions that have been shown to be effective in reducing hospital readmissions.

### Statement of Purpose

The purpose of this study is to review relevant literature related to the problem of hospital readmissions for our elder population. This study is designed to look at interventions, both disease based and non-disease based, that have been previously



implemented and have shown effective reductions in readmission rates. The following questions have guided this inquiry:

Research Question 1: What are the predictors of hospital readmissions?

Research Question 2: What are the characteristics of effective interventions that prevent hospital readmissions?

### Significance

Hospital readmission is one of the most important areas that has been targeted for improvement by the Centers for Medicare and Medicaid Services. Beyond the financial impact that high readmission rates will have on a hospital system, there are individual consequences for our elder population. Multiple hospital admissions and readmissions place the elder population at risk for further deteriorating health and a lower overall quality of life. The influence of disease, comorbid conditions, age, caregiver support, and previous hospitalization influence the risk for readmission. In order to effectively implement appropriate interventions for at-risk populations it is necessary to understand the variables that affect the rate of readmissions to the hospital setting.

This literature review can provide an important contribution to our understanding of the factors and variables that influence the readmission rates of our elder population. This review has the potential to assist and direct hospital administrators and to discharge planners, social workers, and other health professions to implement intervention strategies that promote the continuing health status of our elder population while reducing their overall rates of readmissions.

## Theoretical Framework

Three theoretical frameworks were used to inform this study and guide the literature review.

### *Foucauldian Theory*

Communication between elders, staff, nurses, and physicians is itself integrated into the historically constructed social framework of the medical system (Lazarus, 1988). The different views about sickness and treatment that are held by both residents and medical staff, when viewed more closely, are not about medicine as Irving Zola concludes:

Part of what patients are responding to when they do not cooperate is not the medical treatment but how they are treated, not how they regard their required medical regimen but how they themselves are regarded (Zola, 1985).

Using Foucault's theory and in particular his genealogical studies of institutions, hospital facilities can be viewed as a set of Micro-practices that "inform individual behaviour" (Zola, 1985). The hospital facility itself defines the policies that control and regulate individual behavior and methods of acceptable communication. The techniques are interwoven and self-perpetuating throughout the society of the institution (Bevir, 1999).

### *Self Determination Theory*

Self determination theory is based on the three psychological needs of competence, relatedness, and autonomy. It is hypothesized that these basic human needs correspond to the negotiation of important categories of adaptive tasks.

According to self determination theory, the likelihood that an individual will engage in a behavior and their subsequent follow-through of that behavior depends on the motivation to perform that activity. External motivation includes pressures to act in specific ways. These extrinsic social expectations are applied to human behaviors to avoid punishment or to gain a reward (Kosmala-Anderson, Wallace, & Turner, 2010).

Elders internalize behaviors that they consider important. With this internalization behaviors become more self-determined, resulting in a greater feeling of autonomy. A positive encounter that satisfies the need for autonomy, competence, and relatedness motivates behaviors to internalize the external motivation (Kosmala-Anderson, Wallace, & Turner, 2010).

### *Stress and Coping Theory*

Stress and coping theory is based on the complementary regulatory strategies employed when faced with difficulties or losses. These strategies are:

1. Assimilative strategy is the intentional effort to adjust the self to changing circumstances or developmental situations.
2. Accommodative strategy involves changing criteria of successful aging by eliminating, downgrading, or selecting new goals.(Atchley & Barusch, 2004)

Adaptive behavior occurs primarily as a result of stress, which for this review is defined as problems that affect an individual's health. Coping involves the use of resources that are needed to adapt to the stressful situation in order to neutralize the effect. Coping skills may change over time and in response to the perception of their effectiveness (Atchley & Barusch, 2004).

There are three fundamental processes for successful development

1. Selection-The process of specializing or narrowing down the possible trajectories available for development. Resources (energy) are concentrated on those specialized trajectories (impaired health), thus assuring certain skills or abilities.
2. Optimization-The gaining of those resources (hospitalization/healthcare) that are needed for higher functioning. These can be internal or external but can only be achieved through deliberate practice.
3. Compensation-The way to assure that successful aging continues in the face of losses during the life span.

### Hypothesis

Using the theoretical framework as proposed by Foucault, self-determination theory, and stress and coping theory, the following hypothesis were formulated:

1. Adequate care transition process will decrease the number of readmissions.
2. Patient follow-up will decrease the number of hospital readmissions.
3. Patient transition to post-acute or long-term skilled nursing care will reduce the number of hospital readmissions.
4. Age and increased number of comorbid conditions will negatively affect the risk of readmission.

### Definition of Terms

*Older adult* is interchangeable with elderly and is defined in this review as adults aged 65 and older.

*Index hospitalization* is the initial hospitalization of the older adult.

*Readmission* refers to a hospital admission that occurs within a specified time-frame following an index hospitalization.

*Family* and *caregiving* are interchangeable and denote informal non-paid care of older adults.

### Summary

The purpose of this literature review is to examine the factors that influence hospital readmissions for older adults. This chapter presented the background information on the problem and its significance for older adults, hospitals, and the fiscal health of the Medicare system with the proposed changes. The information presented justifies the need to build upon the current literature to determine which factors influence hospital readmission. With the understanding of the factors that influence the incidence of readmissions, effective interventions and prevention models can be implemented to reduce hospital readmissions and increase quality health care and subsequent health - related quality of life.

## CHAPTER 2

### METHODOLOGY

#### Study Design and Method

This study is designed as an analysis and synthesis examination on the topic of hospital readmissions, interventions, programs, and Medicare policy issues and its effect on our elder population. Analysis included interventions designed to reduce the rate of hospital readmissions and retrospective studies regarding the factors that influence readmissions worldwide and in the United States specifically. Included in the analysis of the published literature was a review of the characteristics, demographics, and disease specific indicators that place the elder population at risk for hospital readmissions.

Subject areas for the literature analysis was based on the potentially preventable readmission (PPR) methodology as used by Medicare Payment Advisory Committee (MedPac) in their analysis of the Medicare readmission proposal in the 2007 report to Congress (MedPac, 2007). The PPR methodology bases its assumptions on the fact that not all types of readmission are preventable. Preventable readmissions are defined by MedPac as those readmissions that

could have been prevented by one or more of the following: (1) the provision of quality care in the prior hospitalization, (2) adequate discharge planning, (3) adequate post-discharge follow-up, or (4) improved coordination between the inpatient and outpatient health care teams. (MedPac, 2007).

These definitions of preventable hospital readmission were the basis for this exploratory research.

An analysis of English language peer-reviewed journal articles published after 1991 through 2012 was searched using the key terms “hospital readmission,”

“discharge planning,” “value based purchasing,” and “hospital care transition.”

Reference sections of identified articles were further searched for additional sources of information. Articles dealing with populations younger than 65 years of age and those pertaining to psychiatric or psychological conditions and HIV/AIDS were excluded from the primary selection of journal articles. While the main focus of this review is the issue of readmissions within the United States, articles dealing with interventions implemented on an international basis were not excluded.

The sample focuses on the population aged 65 years and older, though research retrieved and reviewed may have included populations younger than 65. Literature reviewed included the population of Medicare and non-Medicare recipients who had at least one index hospitalization during each study intervention period. Ancillary to the focus population, studies were also reviewed that included the family and caregivers for the initial study population. In total, 17 prospective studies of direct interventions were reviewed and 7 retrospective studies were analyzed.

## Variables

### *Dependent Variable*

**Readmission rate:** Readmission rate is defined as the percentage of hospital discharged patients who are readmitted within a specified period post-discharge.

Readmission may be either planned or unplanned for the same diagnosis or different diagnosis from index hospitalization.

Table 1

*Retrospective Literature Review*

Source	Participants	Method	Study Population	Outcome	Findings	Mean Age
Weaver et al, 2006 (United States)	78 adults readmitted within 7 days of discharge	Medical Record audit	General Medicine	Criteria for readmission risk	Gastrointestinal cancer Nausea Financial and insurance concerns Caregiver problem Live alone	78
Anderson et al, 1996 (United States)	68 elders readmitted within 31 days of discharge	Medical Record audit	General Medicine	Criteria for readmission risk	Married Elderly Moderately ill women Cardiovascular concerns Respiratory problems	77
Yan et al, 2010 (Hong Kong)	603 adults with unplanned readmissions	Medical Record Audit	General Medicine	Assessment of avoidable readmissions	Clinician Factors Patient Factors System Factors Social Factors	75
Damiani et al, 2009 (Italy)	380 elders discharged to skilled nursing facility	Medical records audit	General Medicine	Assessment of care-home model discharge planning	No reduction noted in readmission rates	75-84
Rayner et al, 2002 (United Kingdom)	1,203 adults discharged	Physician follow up records audit	General Medicine	Readmission risk	Increased age Increased length of stay	
Dobrzansk & Newell, 2006 (United Kingdom)	1,235 older adults readmitted within 28 days of discharge	Medical records audit	General Medicine	Readmission risk	Increased length of stay Living alone Readmission from SNF	84
Lopez-Aguila et al, 2011 (Spain)	365 adults readmitted within 30 days of discharge	Medical records audit	General Medicine	Readmission risk	2+ readmission in previous 2 years 80 years and older 5 or more co-morbid conditions 4 or more medications	



Table 2

*Prospective Intervention Studies*

Source	Participants	Intervention	Study Population	Method	Outcome	Preintervention Control	Intervention	Mean Age
Forster et al, 2003 (United States)	400 Adults discharged during an 81 day period	Investigative case study	General Medicine	Telephone Survey to determine adverse events	Adverse Events 76 (19%) n=47 Readmission Rate	No Control Population	24%	57
Ornstein et al, 2011 (United States)	532 Homebound elders discharged during a 27 month period	Nurse Practitioner led transitional care	Homebound Elders	Nurse Practitioner led discharge program	Readmission Rate 30 days  Length of Stay (days)	16.6%  6.45	15.7%  6.15	81
Kwok et al, 2004 (Hong Kong)	157 randomized elders discharged during a 12 month period	Community Nurse Support	Chronic Lung Disease	Community Nurse led Discharge follow up program	Readmission Rate 28 days  Length of Stay (days)	29%  19.2	33%  20.3	75
Atienza et al, 2004 (Spain)	338 randomized elders discharged during a 6 month period	Heart failure education and discharge program	Heart Failure	Phase 1-in hospital education Phase 2-PCP follow up Phase 3-telemonitoring	Readmission Rate 90 days	45%	24%	68
Jack et al, 2009 (United States)	738 randomized adults during a 12 month period	Nurse Discharge Advocate Program	General Medicine	Reengineered Discharge (RED)	Readmission Rate 30 days	20.7%	14.9%	50
Naylor et al, 2004 (United States)	239 Randomized elders during a 12 month period	Advance Practice Nurse Discharge program	Heart Failure	Transitional care	Readmission Rate 365 days  Length of Stay (days)	55.4%  14.5	44.9%  11.1	76
Chu & Pei, 1999 (Hong Kong)	760 case controlled study during a 9 month period	Investigative Case study	General Medicine	Risk Factor Analysis	Comorbid Conditions  COPD	2.6  23.4%	3.1  31.1%	78
Courtney et al, 2009 (Australia)	128 randomized elders during a 6 month period	Discharge Planning and in home follow-up	General Medicine	Exercise and telephone follow up	Readmission Rate at 168 days	46.7%	22.0%	79
Crilly et al, 2010 (Australia)	177 case controlled study during a 12 month period	Discharge follow up in the hone	General Medicine	Hospital in the Home Program	Readmission Rate at 28 days  Length of Stay (days)	11.3%  6.2	11.3%  2.19	85

*(table continues)*

Table 2 (continued).

Source	Participants	Intervention	Study Population	Method	Outcome	Preintervention Control	Intervention	Mean Age
Garasen et al, 2007 (Norway)	142 randomized elders during a 10 month period	Intermediate care	General Medicine	Community hospital sub-acute care	Readmission rate at 24 weeks Independent Living	35.7% 10.0%	19.4% 25.0%	81
Wong et al, 2010 (Hong Kong)	332 elders discharged during a 24 month period	Investigative case study	General Medicine previously readmitted	Nurse led community follow-up	Subjective health outcome of necessity for hospitalization	No Control Population	87.0%	70-74
Koehler et al, 2009 (United States)	41 randomized elders during a 3 month period	Discharge care coordination	General Medicine	Nurse led care coordination bundle	Readmission Rate 0-30 days Readmission Rate 31-60 days	38% 5%	10% 20%	70
Mesteig et al, 2010 (Norway)	118 elders discharged during a	Investigative case study	General Medicine	Comprehensive Discharge Assessment	Medication Regime (wrong drug or incorrect dosage)	No Control Population	30.5%	83
Coleman et al, 2006	750 randomized elders during a 12 month period	Discharge care intervention	General medicine	Care transitions	Readmission rate at 30 days	11.9%	8.3%	76
Trappes-Lomax et al, 2005 (United Kingdom)	206 randomized elders during a 22 month period	Intermediate care intervention	General medicine	Rehabilitation sub acute facility	Length of Stay (days)	35	27	83
Boockvar et al, 2003 (United States)	562 adults discharged during a 12 month period	Investigative survey	Hip fracture	Observational Cohort Study	Readmission 0-7 Days From Home From Rehab	No Control Population	4.9% 26.0% 31.0%	82
Ahmed & Rak, 2010 (United States)	10,258 adults discharged during a 12 month period	Transitional Care Management Program	General Medicine	Telephone case management	Readmission rate	35.85%	12.66%	50

### *Independent Variables*

The variables prescribed as independent variables within the studies reviewed are broken down into the following categories:

Patient knowledge is described as the information that the patient can recall regarding their disease specific condition, the medications that they are prescribed including the usage or dosage, the side effects, and interactions with other medications, food, and over-the-counter medicines.

Health condition refers to the main disease specific diagnosis, the severity of the health condition, the number of comorbid conditions, activities of daily living, and level of depression.

Healthcare utilization refers to the number of primary care physician visits and usage, home health agency involvement in care, number of previous hospitalizations, and prior number of emergency department visits.

Hospitalizations include the number of hospitalization, the length of stay, and patient satisfaction with the care received.

### *Control Variables*

The personal characteristics are defined as the control variable of age, gender, race, marital status, and education. Gender refers to the two sexes, male or female.

### *Summary*

In this chapter, the basic methodological approach was outlined. In order to determine the factors associated with readmission rates and the interventions that have

been implemented to reduce those rates, an analysis of the published literature was performed.

Table 3

*Variables*

Independent Variables	Control Variables	Dependent Variable
<ol style="list-style-type: none"> <li><b>1. Patient Knowledge</b> <ol style="list-style-type: none"> <li>a. Disease Specific</li> <li>b. Medication               <ol style="list-style-type: none"> <li>i. Usage</li> <li>ii. Side Effects</li> <li>iii. Interactions</li> </ol> </li> </ol> </li> <li><b>2. Health Condition</b> <ol style="list-style-type: none"> <li>a. Disease Specific</li> <li>b. Severity</li> <li>c. Comorbid Chronic Conditions</li> <li>d. Activities of Daily Living</li> <li>e. Depression</li> </ol> </li> <li><b>3. Healthcare Utilization</b> <ol style="list-style-type: none"> <li>a. Primary Care Physician</li> <li>b. Home Health Agency</li> <li>c. Previous Hospitalizations</li> <li>d. Prior Emergency Department Visits</li> </ol> </li> <li><b>4. Hospitalization</b> <ol style="list-style-type: none"> <li>a. Length of Stay</li> <li>b. Patient Satisfaction</li> <li>c. Caregiving</li> </ol> </li> </ol>	<p><b>Sociodemographic</b></p> <ol style="list-style-type: none"> <li>a. Age</li> <li>b. Gender</li> <li>c. Race</li> <li>d. Marital Status</li> <li>e. Education</li> </ol>	<p><b>Readmission Rate</b></p>

## CHAPTER 3

### LITERATURE REVIEW

The fastest growing segment of our population is now considered “old”, those that are 65 years and older. Within the first half of this century, 70 million baby boomers will swell this segment of the population to an unprecedented 20% (Figure 1) of the total United States population (He, Sengupta, Velkoff, & DeBarros, 2005; Shostak, 2007), with one person reaching age 50 every 8 seconds (Transgenerational, 2011). The increase in population aging has resulted in an increase in health care expenditures overall, with a projected 79% increase in Medicare spending between 2010 and 2020, from \$518.5 billion to \$929.1 billion (Stone & Hoffman, 2010). This increase in health costs is not only the result of an aging population, but is also a byproduct of increased use of medical technology (which includes advances in pharmacology). These advances have allowed for the greatest gains in the oldest-old population of 85 years and older, which grew from 100,000 in 1900 to 5.7 million in 2008 (Figure 2) (Federal Interagency Forum on Aging Related Statistics, 2010). Even with this increase in spending by Medicare, many argue that the quality of care that our elder population receives is not an adequate return on our investment.

In 2008, 23% (Figure 3) of all health care spending was for Medicare beneficiaries, totaling \$444 billion (Medpac, 2010), and 29% of that (\$129.1 billion) represented Part A hospital care (Stone & Hoffman, 2010). The Congressional Budget Office (CBO) has predicted that the average annual increase through 2019 will be 6%, culminating in an annual increase of \$234.9 billion (Congressional Budget Office, 2010). It has been estimated that 50% to 70% of Medicare Part A hospital expenses goes to

pay for a small portion (10% to 13%) of the Medicare beneficiaries (Zook & Moore, 1980; Lopez-Aguila, Contel, Farre, Campuzano, & Rajmil, 2011).

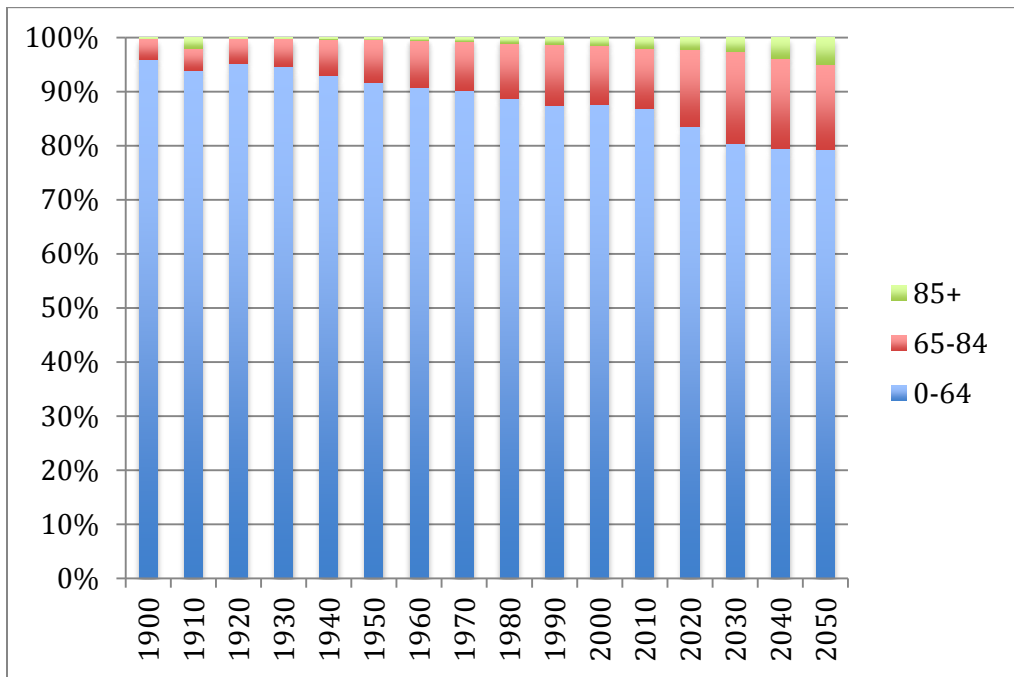


Figure 1. Baby Boomer population 1900 to projected 2050 (U.S. Census Bureau, 2002).

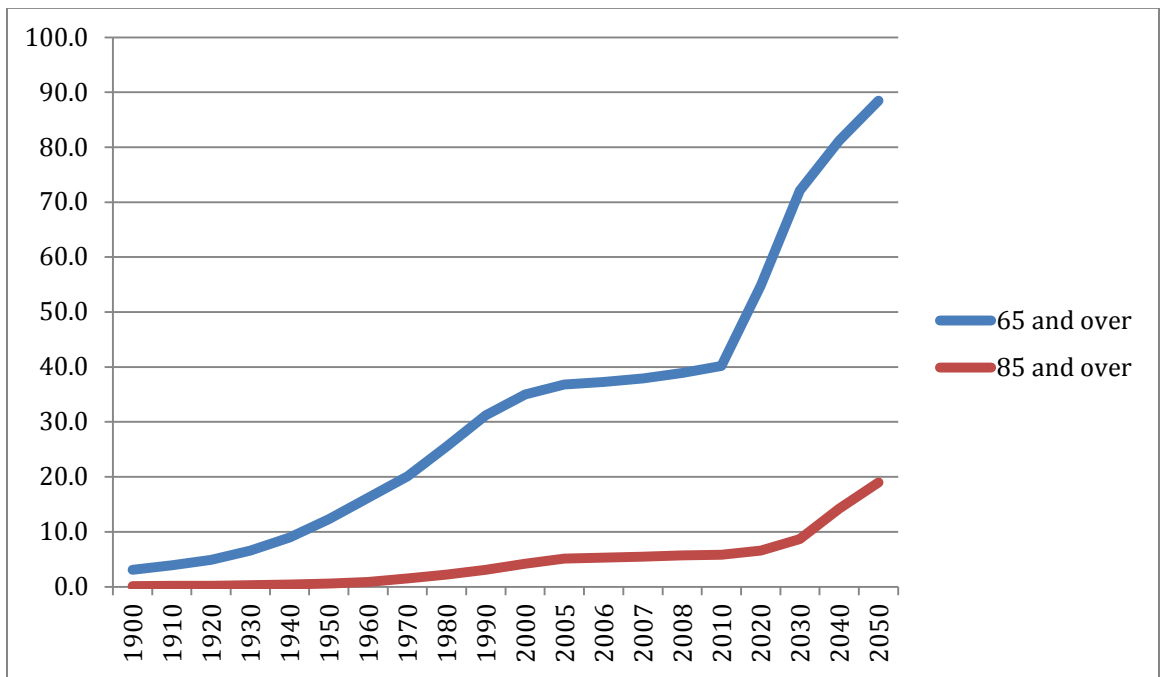


Figure 2. Population age 65 and over and age 85 and over, 1908-2008 and projected 2010-2050 (U.S. Census Bureau, 2008).

Regarding expenditures, a mere 32% of beneficiaries make up 61% of payments under the physician fee schedule for congestive heart failure (CHF), coronary artery disease, and diabetes (Institute of Medicine, 2006).

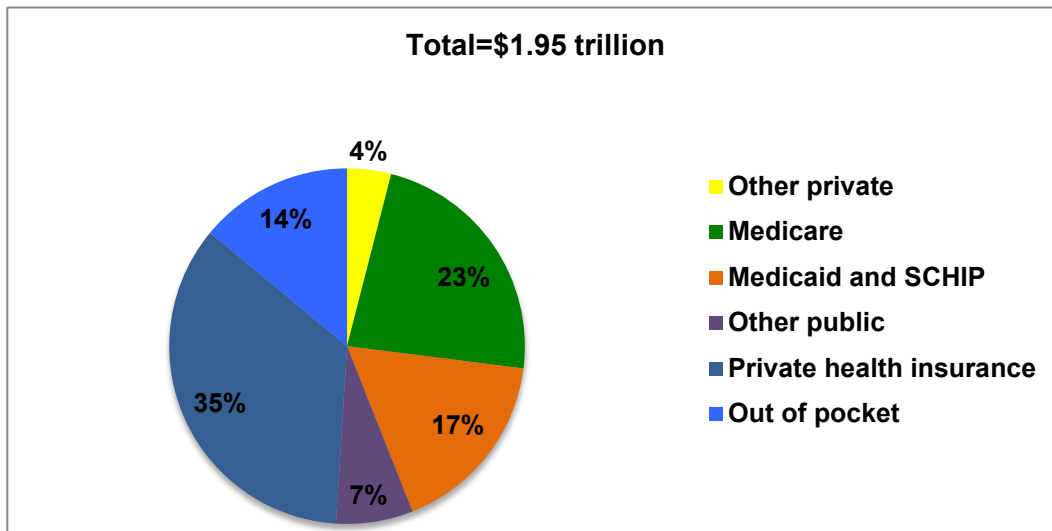


Figure 3. Medicare spending in 2008 (Medpac, 2010).

Faced with the rapid rise in our aging population and with the ever increasing costs of healthcare and claims of quality inadequacies, the House, Senate, and President Obama have enacted the landmark comprehensive health care reform legislation. On March 23, 2010 the Patient Protection and Affordable Care Act (PPACA:P.L. 111-148) was signed into law (Congressional Budget Office, 2010). With the implementation of the Affordable Care Act (ACA), the Obama administration has proposed to redesign the Medicare Inpatient Prospective Payment System (IPPS) to incorporate rate-reduction under the new value based purchasing (VBP) program.

### History of Medicare

In 1965, the federal government passed a landmark bill providing health care coverage for qualifying adults age 65 and older. The introduction of Medicare in 1965

provided health insurance coverage for hospital and physician expenses for older and disabled Americans who, until the enactment on July 1, 1966 (Finkelstein, 2007), had neither the opportunity nor the means for proper health care. The result of Medicare meant that almost 100% of the elders and disabled could afford medical coverage paid for by the federal government (Finkelstein, 2007), which was funded through payroll taxes. The blueprint for Medicare was based on the contracts as provided by private health insurance companies and its method for monitoring of physicians, in fact, Title 18 of the Social Security Act under which Medicare was originally formed, admonished the Federal government to stay out of the practice of medicine (Milgate & Hackbarth, 2005-2006). The origin of this philosophy was based on the thought that a physician that was properly licensed could be relied upon to assure that quality care was provided (Milgate & Hackbarth, 2005-2006).

### Inpatient Prospective Payment System

Without the federally mandated oversight of hospitals and physicians and subsequent quality of care, excessive costs aroused concerns within the Federal government as to the appropriateness of care and increasing hospital admissions. This resulted in the creation of the professional standards review organization (PSRO) in 1972, which was further refined in 1982 when the Peer Review Improvement Act was passed (Milgate & Hackbarth, 2005-2006). The Peer Review Improvement Act allowed for oversight regarding appropriateness of hospital and physician expenses. In 1983, as an additional way to cut increasing costs of health care, Congress passed the Medicare prospective payment system (PPS), which resulted in the development of



diagnostic-related groupings (DRG) as a payment method for hospital care. The consequential diagnostic-related groupings changed the payment structure for hospitals from actual resources utilized for care to a single payment amount, regardless of resource utilization, for each diagnosis. This structure in essence created an incentive for hospitals to use fewer resources and days to deliver care (Milgate & Hackbarth, 2005-2006) and encourages the treatment of elders in an outpatient setting (Anderson, Hanson, & DeVilder, 1996). It is argued that this system of payment has resulted in elders being discharged “quicker and sicker” from the hospital setting.

The current Medicare IPPS does not provide incentives to hospitals to reduce their preventable readmission rates or increase quality outcomes. Payments are based on a prospective system for each discharge, which are intended to cover all inpatient days and services used by the older adult during their stay. Any difference in the IPPS and the hospital cost are retained as net profit and losses are absorbed by the hospital. This structure results in hospitals being rewarded for efficiency, volume, and early discharge. Efficiency does not necessarily mean quality.

#### Introduction of Quality

From 1965 to the mid 1980s, Medicare did little to measure or improve the quality of health care but in the late 1980s and early 1990s there was a shift within the Health Care Financing administration (HCFA), later called the Centers for Medicare and Medicaid Services (CMS), with the establishment of the Health Care Quality Improvement Initiative (HCQII). The goal was to improve inpatient hospital care for certain conditions using accepted guidelines (Milgate & Hackbarth, 2005-2006).

Government is slow to evolve and in 2002 the HCQII was expanded and renamed the Quality Improvement Organization (QIO) in order to increase care outside of the hospital setting (Milgate & Hackbarth, 2005-2006). This expansion of functions includes:

- Improving quality for beneficiaries
- Protecting the integrity of the Medicare Trust Fund by ensuring that Medicare pays only for services and goods that are reasonable and necessary and that are provided in the most appropriate setting
- Protecting beneficiaries by expeditiously addressing individual complaints, such as beneficiary complaints; provider-based notice appeals; violations of the Emergency Medical Treatment and Labor Act; and other related responsibilities as articulated in the QIO (Centers for Medicare & Medicaid Services, 2011)

#### Affordable Care Act

Beginning with the Bush Administration in 2003 with the passage of the Medicare Modernization Act and the Deficit Reduction Act and continuing to be refined and expanded during the current Obama Administration with the passage of the Patient Protection and Affordable Care Act of 2010 as amended by the Health Care and Education Reconciliation Act of 2010 (collectively known as the Affordable Care Act) the Centers for Medicare and Medicaid Services (CMS) are no longer a passive payer of medical care costs, but have been propelled into the role of active purchaser of medical care (Centers for Medicare and Medicaid Services, 2010; Klees, Wolfe, & Curtis, 2010). Hospitals will be either rewarded or penalized based on their performance as determined by a number of quality measures. Hospital readmission rates are one such measurement of quality care.

The amendments adopted in 2003 regarding the hospital reporting of clinical quality measurements have become the backbone of the government's strategy to drive quality of care improvements by imposing a penalty to hospitals of 0.4% of their total DRG payments for not reporting quality indicators (Centers for Medicare and Medicaid Services, 2011). In 2005, as part of the Deficit Reduction Act (DRA), the penalty for non-reporting of clinical quality measures was increased from 0.4% to 2.0%. The DRA further charged the secretary of Health and Human Services (HHS) with devising a plan for the adoption of a pay for performance (P4P) Medicare hospital reimbursement plan by 2009. (Tanenbaum, 2009).

### Value Based Purchasing

In 2007, CMS provided its Report to Congress: Plan to Implement a Medicare Hospital Value-Based Purchasing Program (CMS 2007) as mandated by the DRA. The report defines value-based purchasing (VBP) as P4P, and among the goals that CMS has defined for the Medicare hospital VBP programs is to "reduce adverse events and improve patient safety" and "encourage patient-centered care" (CMS Hospital Pay-for-Performance Workgroup, 2007). With the implementation of the Affordable Care Act, Medicare will incorporate rate reductions under the VBP based on quality indicators reported under the current Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU) of which hospital readmission rates is a key indicator of patient quality (Appendix A). The goal of this initiative is twofold: 1) to curb the increasing expenditures as our nation grows older, and 2) to improve the quality of care that our

elders receive. Improving the quality of care for our elder population should also improve their health related quality of life.

The Medicare hospital VBP builds upon the current Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU), which has been collecting data and providing online hospital quality comparisons through the Department of Health and Human Services web site ([www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov)) and payments to hospitals for the reporting of quality measures since fiscal year 2005 (CMS, 2010). Under the proposed P4P initiative, the data collected in the RHQDAPU will serve as the baseline measure of hospital performance. All of this has been leading up to the magic date of October 1, 2012, fiscal year 2013, when the Hospital Value-Based Purchasing program will be fully implemented, including incentives for improved hospital readmission rates which are deemed an indicator of quality care.

A hospital's performance would be aggregated within individual domains such as process of care, patient experience, or outcomes. The hospitals total performance score would be then translated into a P4P incentive payment or penalty (CMS, 2010). Incentive payments and penalties have been mandated to be budget neutral and are initially funded by an overall 1.0% reduction in hospital DRG Medicare payments beginning in the fiscal year 2013. The Affordable Care Act requires that the proposed measures for the Hospital VBP program be the measures that are currently used in the RHQDAPU, later termed the Hospital Inpatient Quality Reporting Program (IQR). CMS has adopted 45 measures in the IQR program including 15 measures that directly assess the quality of care as measured by 30-day mortality and readmission rates

(QualityNet, 2011). The goal of requiring hospitals to measure and report quality of care is to incentivize the institutions to:

- Evaluate their entire spectrum of care
- Identify systemic and specific conditions that can be changed to make care safer and more effective
- Reduce complications of care through the investment in intervention
- Better assess the readiness of discharge
- Improve discharge procedures
- Medication reconciliation
- Improve transitional care from inpatient to outpatient (QualityNet, 2011)

It is not known what the exact financial impact will be to the hospital industry when the redesigned IPPS of the VBP is fully implemented in the fiscal year 2013, but it has been suggested that Medicare may save up to a total of 5% of its current and future expenditures (Maryland Hospital Association, 2009). This 5% savings for Medicare conversely relates to a 5% reduction in hospital payments. However, not every hospital organization will experience either an increase or reduction in earnings. Hospitals that demonstrate improved and sustained performance in the CMS VBP quality indicator areas may benefit from an increase in their IPPS payments. Performance payments or penalties will be based on eighteen measures in two domains: 1) clinical outcome and 2) patient experience (Centers for Medicare and Medicaid Services, 2011).

#### Readmissions as a Measure of Quality of Care

Until the mid 1980s quality was not considered a viable outcome measure to be used when one spoke of rating - or grading - a health care system or provider. With the

advancement of health technologies and sophisticated medical treatment, previous quantity measures of performance of morbidity and mortality are no longer acceptable. Outcome measurements must now include factors related to the quality “over quantity” of life of the elder, including areas that may impair the health related quality of life and hasten a decline in the adherence to treatment regimens (Hickey, Barker, McGee, & O'Boyle, 2005).

There has been a lot written about the quality of care within the hospital setting and how the rate of readmission is indicative of that quality, i.e. high rate of readmission indicates a lower quality of care, in fact, readmission rates are one of the quality indicators that the new Medicare policy will use to either reward or penalize hospitals for their reported quality of health care. CMS has proposed to use readmission rates as a measure of hospital quality, which is integrated in their P4P initiative (CMS Hospital Pay-for-Performance Workgroup, 2007). The thought process behind this quality measure is the research on preventable readmissions.

The potentially preventable readmission (PPR) methodology includes adequate discharge planning and follow-up as methods for reducing readmission of our elders (Averill, McCullough, Hughes, Goldfield, Vetrees, & Fuller, 2009). It is suspected that 9% to 48% of all readmissions are preventable through the resolution of the main diagnosis, consistent therapeutic regimens at discharge, and adequate post discharge care (Benbassat & Taragin, 2000), including follow-up.

## Readmissions

Hospital readmission rates have become an important element in President

Barack Obama's vision to change the way health care has been financed through the Centers for Medicare and Medicaid Services. In a June 15, 2009 address at The Annual Conference of the American Medical Association, President Obama stated that "...we need to use Medicare reimbursements to reduce preventable hospital readmissions. Right now, almost 20 percent of Medicare patients discharged from hospitals are readmitted within a month, often because they're not getting the comprehensive care they need." (Obama, 2009). With this sweeping statement, hospital administrators are furiously trying to understand the key elements and causes of the high rate of readmissions in our elder population and to adopt successful interventions.

The trending of hospital readmission rates shows an upward trend, with some research indicating that 6-month readmission rates have increased from 22.5% to 31.1% over the previous 30 years (Jencks, Williams, & Coleman, 2009). This increase in readmission rates may in fact be due to the historical changes in the Medicare payment system, from actual services consumed to the IPPR (DRG) structure. The resultant increase and physician preference for outpatient surgical options which has resulted in only the most acute elders being admitted to the hospital. To counter this previous gaff in payment structure, the P4P initiative will penalize hospitals with above-average readmission rates through the reduction of their annual DRG payments. Hospitals that demonstrate increased quality of care (as defined by Medicare) through reduced readmission rates are rewarded with an increased payment subsidy above their DRG. It is therefore incumbent upon hospitals to analyze their readmission rates and to implement procedures and interventions that will not only reduce the chance of

readmission, but will ultimately increase quality of care and the health related quality of life for Medicare beneficiaries.

In 2003, 35 million people aged 65 and older received Part A Medicare benefits covering hospitalization costs (Hoffman Jr., Klees, & Curtis, 2004). Of those 35 million, 13,062,937 enrollees were discharged from 4926 hospitals nationwide (Jencks, Williams, & Coleman, 2009). Of those 13,062,937 hospital discharges, it is estimated that almost 20% (19.6%) were readmitted within the first 30 days (Foster, Murff, Peterson, Gandhi, & Bates, 2003) of discharge and 25% to 34% returned within the first 90 days (Strunin, Stone, & Jack, 2007; Jencks, Williams, & Coleman, 2009). While there is not one definitive cause to this high readmission rate, research has shown that almost 50% of patient readmissions are the result of avoidable and preventable errors (Foster, Murff, Peterson, Gandhi, & Bates, 2003). Among those avoidable and preventable errors are two causes that stand out (1) lack of consistent and effective discharge planning and (2) lack of patient follow up during and after the transition from inpatient to outpatient status. These avoidable and preventable errors totaled \$17.4 billion in 2007 (Medpac, 2010; Jencks, Williams, & Coleman, 2009). Avoidable and preventable errors are the direct result of a breakdown in the transition of care provided by our healthcare system when elders are admitted to the hospital, for the duration of their length of stay (LOS) through the transfer process from inpatient status to outpatient status.

Hospital readmissions are seen as those admissions that occur within a certain period of time following the discharge of the index hospitalization. Readmission may either be planned or unplanned to the initial hospital of care or an alternative hospital for



care. There is currently no agreement as to what the time frame is that Medicare will use to calculate readmission rates, but generally accepted guidelines include time frames of 7, 15, and 30 days from the index hospitalization stay to upwards of 60 or 90 days. Most prospective and retrospective studies conducted within the United States calculate readmission rates on a 30-day readmission rate, Europe has standardized their rate at 28 days. While readmission rates do vary depending on how far from the index hospitalization an elder is at the time of readmission, Jencks (2009) found that an average of 19.6% of Medicare beneficiaries who had been discharged from a hospital were readmitted within 30 days (Jencks, Williams, & Coleman, 2009), while readmission rates for the upper end of the proposed estimates that are to be used by CMS range from 34% within 90 days of discharge, to a shocking 56.1% within one year (Jencks, Williams, & Coleman, 2009).

With all of the importance placed on hospital readmissions, it is imperative to understand the factors that influence and cause re-hospitalizations. There is extensive literature on readmission rates, causes, and reduction strategies, but this research is typically limited to a particular chronic condition or disease, for example heart failure or diabetes, for example. There is little that addresses a broad array of conditions and processes that contribute to hospital readmission rates. In fact, the New England Journal of Medicine in 2009 published *Rehospitalization Among Patients in the Medicare Fee-for-Service Program*, one of the few research studies aimed at analyzing general characteristics of hospital readmissions (Jencks, Williams, & Coleman, 2009). An additional retrospective study by Jencks and Williams (2009) found that of all the patients readmitted within 30 days of discharge, 77.6% were medical discharges and

22.4% were surgical discharges (Jencks, Williams, & Coleman, 2009), indicating the role that chronic co-morbidities play in readmissions (Morrisey, McElnay, Scott, & McConnell, 2003). Furthermore, most of the demographic factors of patients were negligible in predicting hospital readmission rates, number of previous hospitalizations, chronic conditions, and the length of stay at the index hospitalization was a more accurate indicator (Jencks, Williams, & Coleman, 2009).

Naylor et al (2004), in opposition to Jenck's (2009) findings, determined that elders of particular demographic groups and experiencing certain characteristics were shown to be more at risk for hospital readmissions. Individuals with multiple comorbid chronic conditions (Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004) were at a 34% greater risk of readmission (Soeken, Prescott, & Herron, 1991). What was found across most of the studies analyzed was that as age increases the risk for readmission also increases (Hanna, Racz, & Walford, 2003; Hasan, et al., 2009) with the oldest-old (85 years and older) being at the greatest risk for readmissions. Jencks et al (2009) has suggested that hospital readmissions may also vary by geographic region (Jencks, Williams, & Coleman, 2009). Further studies have found that hospital stays longer than 14 days and discharges without support from either family or informal caregivers correlates with increased the risk of readmission (Weaver, et al., 2006).

As noted above, the data suggests that longer length of stay is associated with a higher risk of readmission. Elders with longer lengths of stay are at a greater risk for hospital readmission, which Westert et al (2002), in their study of readmission rates in Europe and the USA, concluded was evidence against the argument that hospitals were prematurely discharging elders (Westert, Lagoe, Keskimaki, Leyland, & Murphy, 2002).

In fact, one may look at LOS as an indication of severity of illness that may still result in premature or early discharge, particularly in the United States under the current Medicare IPPR DRG system of payment. However, research has shown that hospital practices, not the payment mechanism, may be a factor in length of stay. Scotland, which has nationalized healthcare, has the shortest LOS of all the countries studied, possibly due to the principle of supply and demand, and the highest incidence of readmission rates for those diseases studies (Westert, Lagoe, Keskimaki, Leyland, & Murphy, 2002) . Dobrzanska & Newel (2006) compared length of stay with the interval to readmission in a study of UK elders, longer lengths of stay were positively correlated with interval days to readmission: 72 hours v 4-59 days resulted in readmission intervals of 10.84 v 14.61 days (Dobrzanska & Newel, 2006).

Elders with heart failure have been shown to have the highest hospital readmission rate of 26.9% (Jencks, Williams, & Coleman, 2009; Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004; Chu & Pei, 1999) and those that have 5 or more comorbid conditions experience an additional 40% higher hospital readmissions rate (Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004). Additional disease specific readmission rates include: chronic obstructive pulmonary disease (22.6%), pneumonia (26.9%), and gastrointestinal conditions (19.2%) (MedPac, 2007). Elders with a cancer diagnosis conversely have one of the lowest readmission rates (7.7%) (Weaver, et al., 2006), possibly due to the intensive care, treatment, and follow up that this population receives.

While data has shown that there are general risk factors associated with hospital readmission rates - age, number of chronic comorbid conditions, geographic location,

and disease specific causes - the specific reasons are as varied as the individual elder including a variety of adverse events that may occur as the elder is being discharged or placed in an alternative care setting. These factors influencing readmissions can be broken down into four categories: patient, clinical, social, and system factors.

- Patient factors: demographic information such as age and self-health factors that include, but are not limited to, medication or regimen compliance.
- Clinical factors: the appropriateness of care, assessment and treatment of the medical problem as well as the management and treatment protocols employed while in the hospital environment and after discharge.
- Social factors influencing readmissions include ways in which the elder copes with their health disparities, caregiving, and available community assistance.
- System factors: the availability and coordination of health care (Lyrtzopoulos, Havelly, Gemmell, & Cook, 2005)

Not all of the factors that influence readmissions are preventable such as age and health status, but those may be used to indicate who, within a population, is most at risk for hospital readmission.

Current research has attempted to clarify and identify hospital readmission predictors of at risk elders. The performance and reliability of these prediction models in the United States is generally only fair (Hasan, et al., 2009). The Hasan et al (2009) prediction model was not statistically significant when applied to their retrospective multi-center analysis of readmission rates (Hasan, et al., 2009), but the weak correlation may indicate that elders who are at risk for readmission may have less to do with specific demographic and personal characteristics than it does with the care received during their hospitalization and discharge/post-discharge care, since these processes have not been standardized across institutions.

## Discharge Planning

The World Health Organization (2005) has recognized that discharge planning is a key issue to safeguard “safe and effective” transition from hospitalization to an alternate care setting (Parker, 2005). Hospital discharge planning is the most common method of communicating treatment and follow-up and is therefore a key element in maintaining continuity of care for our elder population (Institute of Medicine, 2001). Discharge planning typically include the instructions that the hospital provides to the patient, family/caregivers, primary care physician (PCP) or other specialty physician, but it may also include counseling toward a smooth transition to the next care setting, whether it is the home or a sub-acute care or rehabilitation facility. Discharge planning is designed to prepare the elder and their family/caregiver to make a smooth, informed transition that allows them to best care for themselves.

The need for effective discharge planning for our elderly population has been thrust into the forefront of discussions regarding the coming changes to our Medicare policy payment method as an area for potential improvement to reduce the rate of hospital readmissions. The current IPPS System Conditions of Participation requires hospitals to provide discharge planning to all older adults in the Medicare fee-for-service program but does not ensure that effective discharge planning is implemented (CMS, 2006) (Appendix B). The discharge planning and implementation process has also not been standardized within the medical community and is frequently not even standardized within a single medical (hospital) setting (Strunin, Stone, & Jack, 2007). This fragmentation leaves the elder exposed to increasing complications and risks that may result in readmission (Strunin, Stone, & Jack, 2007).

One in five hospitalizations is complicated by post discharge adverse events that result in readmission (Jack, et al., 2009; Jencks, Williams, & Coleman, 2009; Strunin, Stone, & Jack, 2007). Despite this knowledge, discharge planning has not been standardized throughout the hospital setting and is fragmented and hampered by the dwindling number of primary care physicians available to our geriatric population (Coleman & Berenson, *Lost in Transition: Challenges and Opportunities for Improving the Quality of Transitional Care*, 2004), which is projected to decrease from 20% to 27% over the next 15 years (Colwill, Cultice, & Kruse, 2008). The discontinuity and lack of communication, either written or oral, between the hospital and the outpatient PCP/specialist physician is just one symptom of the lack of care coordination post discharge. This lack of oversight can have dire consequences in which case readmission is a positive outcome.

Discharge summaries often lack important valuable information that is required by the follow-up PCP and/or specialist to properly treat and continue improving the health of their patients. Elders and PCPs are often left unaware and unprepared because critical data such as pending test results or incomplete evaluations are often omitted from discharge summaries (Roy, Poon, Karson, Ladak-Merchant, Johnson, & Maviglia, 2005), and PCPs are rarely notified of patient discharges or involved in the discharge planning (Ornstein, Smith, Foer, Lopez-Cantor, & Soriano, 2011; Forster MD, Murff MD, Peterson MD, Gandhi MD, & Bates MD, 2003).

Retrospective studies have revealed that discharge summaries often fail to provide important information on pending test results, changes in medications or dosages, and primary diagnosis. This lack of information is further hampered by the lack

of efficiency in a timely delivery of the summaries to outpatient providers. At first follow-up it is estimated that 75% (Kripalani, Jackson, Schnipper, & Coleman, 2007) to 85% (van Walraven, Seth, & Laupacis, 2002) of all discharge summaries have not been forwarded to outpatient providers. A Canadian review of readmissions of elders following their post discharge PCP appointments found that less than one fourth (24.5%) of hospital discharge summaries were available to the physician (van Walraven, Seth, & Laupacis, 2002). Effective patient care can only be provided if the follow-up physician has all the information on the hospital stay that should be included in the discharge summary. In the absence of a discharge summary, physicians must rely on patient recall or interim hospital summaries.

When discharge summaries are received, they rarely reflect an elder's accurate health status and current medication regimen even though hospital physicians consider an elder's main diagnosis, results of laboratory tests, and medications - including reasoning for alteration - a critical component of the discharge planning process (Kripalani, Jackson, Schnipper, & Coleman, 2007). Walz et al (2010) found that of the discharge summaries reviewed, 89% omitted an indication of pending tests and 41% of elders are discharged with lab tests pending 9.4% of which would have, in the Walz et al analysis, warranted a change in the elders care (Walz, Smith, Cox, Sattin, & Kind, 2010).

### Transitional Care

Discharge planning is described by Medicare as "(a) process used to decide what a patient needs for a smooth move from one level of care to another" (CMS,

2010). Medicare conspicuously omits a description or definition for follow-up methods. Obviously absent from this definition are the elements that ensure a successful discharge plan or even the requirement that improved health be assured. By contrast, transitional care has been defined by Coleman and Berenson (2004) as “a set of actions designed to ensure the coordination and continuity of health care as patients transfer between different locations or different levels of care” (Coleman & Berenson, *Lost in Transition: Challenges and Opportunities for Improving the Quality of Transitional Care*, 2004). Transitional care planning typically begins at the onset of the index hospitalization and is usually managed by a multidisciplinary team throughout the entire hospital experience. Effectively implementing a comprehensive transitional care plan can reduce hospital readmission rates and mortality by 13.7% as well as the total LOS days for those that are readmitted (Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004).

According to the American Geriatrics Society, “transitional care” includes a range of services - that are limited in scope and time - are provided within a variety of environments to provide care continuity in order to avoid preventable adverse outcomes as they move (American Geriatrics Society, 2009) from one care setting to the next (Naylor, et al., 2009). In 2002, the Transitions of Care Consensus Conference issued a policy statement that specifically identified discharge planning and a lack of communication as key problems to improving quality of care, quality of life, and health related quality outcomes (American College of Physicians; Beacon Medical Services; Society of Hospital Medicine; University of Chicago Medical Center; University of Nebraska; University of Florida; American Board of Medical Specialties; Northwestern



University, 2009). Transitional care can take many forms, a fact that parallels the needs of discharge planners and includes transfers from hospital to home, hospital to skilled nursing facility (SNF), or hospital to rehabilitation or sub-acute care setting, then home. Each transition (transfer) to a different setting with different healthcare personnel and/or Medicare guidelines or payment schedule leaves the elder vulnerable to systemic and individual factors that, when not handled properly or efficiently, can result in a hospital readmission. Our most vulnerable population for these care transitions are those elders with multiple comorbid conditions and complex therapeutic regimens (Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004).

### Combining the Two

Discharge planning has been identified as one of the key procedures to ensure a good outcome during transitional care. Yet as important as effective discharge planning is, a thorough intake and continuous management of the process of care while the elder is an inpatient is also paramount to reducing hospital readmissions. Discharge planning is not effective if there is no baseline set at intake. Among the areas that should be assessed at intake are the elder's activities of daily living (ADL). Assessment of ADLs and continuous and close communication with the elders and their social and professional networks is one of the best ways to identify the needs and supportive solutions at discharge (Garasen, Windspoll, & Johnsen, 2007). Garason et al (2007) found that the central element that reduced hospital readmissions was the communication and coordination across healthcare teams that allows, not only the

physician but also community care agencies and healthcare teams to simultaneously follow up after discharge (Garasen, Windspoll, & Johnsen, 2007).

### Medication Reconciliation

As a consequence of the failed discharge system, many elders do not understand their medications and often cannot recall their chief diagnosis (Makaryus & Friedman, 2005). Upon discharge, almost half (49%) of all patients experience a minimum of one medical error in medication, pending test results, or diagnostic workup of which 29-23% results in a readmission, most typically caused by an adverse drug event (ADE) (Kripalani, Jackson, Schnipper, & Coleman, 2007; Roy, Poon, Karson, Ladak-Merchant, Johnson, & Maviglia, 2005). Receiving care from multiple providers in multiple settings poses significant risks for medication errors (Coleman & Berenson, Lost in Transition: Challenges and Opportunities for Improving the Quality of Transitional Care, 2004). Of all ADEs, it is estimated that 50%-75% are either preventable or ameliorable (Forster MD, Murff MD, Peterson MD, Gandhi MD, & Bates MD, 2003; Friedman & Basu, 2004; Roy, Poon, Karson, Ladak-Merchant, Johnson, & Maviglia, 2005) with adequate post discharge care and communication with elders and their families/caregivers.

Reconciliation of medications - those taken at admittance and those prescribed at discharge - may decrease post discharge ADE's. The most common mistake is the failure to list medications that were being taken at the time of index hospitalization (McMillan, Allan, & Black, 2006). 66% of adverse discharge events can be attributed to the elder's medication regime (Forster, Murff, Peterson, Gandhi, & Bates, 2003), and

medication discrepancies are the cause of 12%-25% of the care complications that require elders to return to a higher level of care (Coleman & Berenson, Lost in Transition: Challenges and Opportunities for Improving the Quality of Transitional Care, 2004). It is estimated that 49% of all discharges occur without attentive reconciliation of pre-hospitalization and post hospitalization medications (Kripalani, Jackson, Schnipper, & Coleman, 2007). These ADEs are an indication of a lack of proper discharge planning and procedures.

The results of medication errors, common in many discharge summaries, are far reaching. Errors may lead PCPs to believe that a medication has been stopped during index hospitalization when that is not the case, resulting in a serious ADE, which may result in a hospital readmission. PCP's may also prescribe a medication that they believe was inadvertently left off the discharge summary if there is not a clear and concise reason listed in the discharge order for why a medication has been started or stopped.

### Communication

Communication between physician, elder, and family/caregiver is another key element of discharge planning. A successful discharge planning procedure will result in the patient being able to recall their chief diagnosis and to know and understand their medication regimen, including the side effects and dosages. One study found that of all the communication and education that may occur during hospitalization and at discharge between healthcare personnel and elder or family/caregiver, understanding the side effects of medications was the least understood (Makaryus & Friedman, 2005).

The patient's ability to recall of all medications at discharge is important, even when patients could not recall the names of their medications, they more often could recall the purpose (Makaryus & Friedman, 2005) not the side effects or required regimen. Elder's understanding of their medication treatment regimens, use, and potential side effects would decrease the incidence of ADEs by 50% (Roy, Poon, Karson, Ladak-Merchant, Johnson, & Maviglia, 2005).

### Family/Caregiver/Social Support

Caregivers play an important role in how elders experience illness by helping them cope both inside and outside of the hospital setting by assisting elders in their transition and compliance with their discharge care plans, including following medication regimens and providing support. The role of caregiver is pivotal to the success of a smooth transition and exploring their experiences may give insight into the elders overall quality of care, compliance, and success through the care transition. Studies have shown that the presence of social support lowers the incidence of readmissions (Hasan, et al., 2009). It has been further suggested that social support may play an important role in preventative care visits and follow-up visits to PCPs, which have been linked to the reduction the incidence of readmissions.

Obtaining family and caregiver buy-in with the elder's care transition plan is vitally important to maintaining and improving the health of the elder. Studies of discharge/transition planning and caregivers have shown that it is often perceived in a negative light and is a source of frustration and lack of trust because of poor communication (Bauer, Fitzgerald, Haesler, & Manfrin, 2009). One of the main concerns

of the family/caregiver is understanding the needs of the elder and the responsibilities that are being assumed as they take on the role of caregiver (Bauer, Fitzgerald, Haesler, & Manfrin, 2009). The success of discharge planning increases with the level of involvement of the family and caregivers in the planning process (Cox, 1996).

During discharge planning, health care personnel not only need to do a comprehensive assessment of the elder, but they also a need to assess the skills and willingness of the family and caregivers to provide the care needed upon discharge. Assessment should include their willingness to take on complex roles of care and impediments to fulfilling their role as caregiver (Bauer, Fitzgerald, Haesler, & Manfrin, 2009). Too often, the presence of a willing and able family/caregiver negatively influences whether or not there is a referral for community services (Bauer, Fitzgerald, Haesler, & Manfrin, 2009) increasing their burden and expanding their caregiver role.

Caregiver burden is one way to measure the effectiveness of information that is received. Research on caregiver burden has confirmed that caregivers who receive information about the medications and care instructions experience less stress and have a higher rate of satisfaction (Weaver, Perloff, & Waters, 1998), which may thwart the risk for readmission. Comprehensive training of families/caregivers has been shown to increase the quality of care provided to the elder (Coleman, Parry, Chalmers, & Min, 2006). Both the elder and caregiver expectations of the level of care and services that will be provided must be managed while the elder is still in the hospital.

## Geography

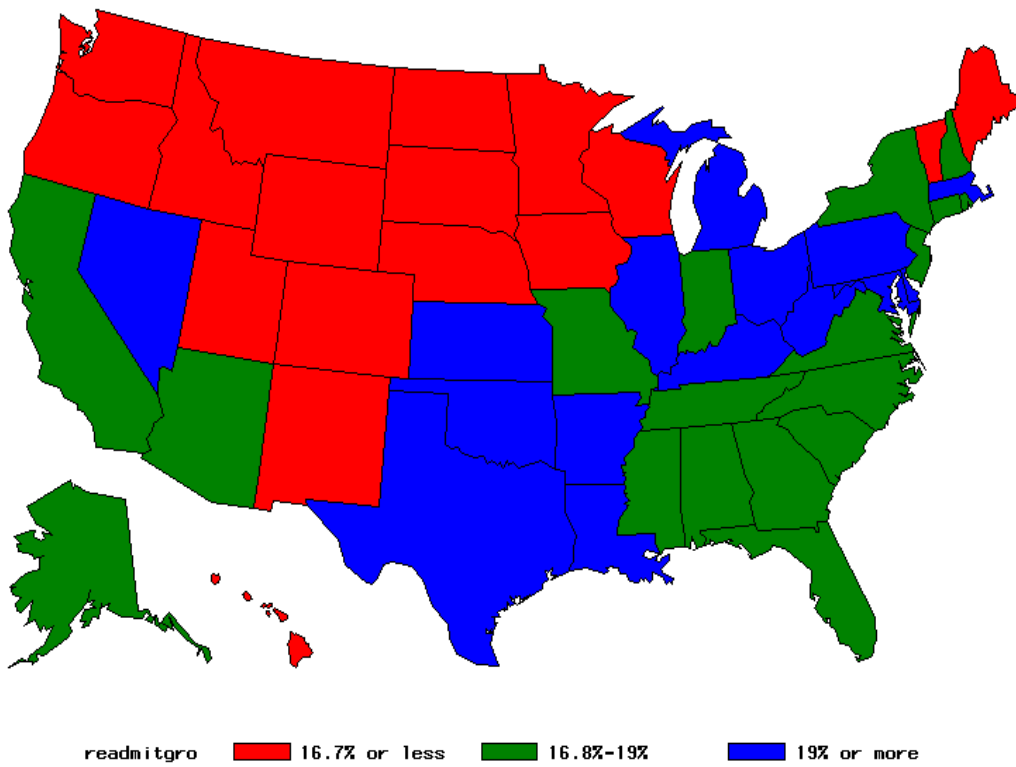
*A New England Journal of Medicine* study found that readmission rates within

differing geographic regions vary. Four states (Maryland, New Jersey, Louisiana, and Mississippi) had a 45% higher readmission rate over the four with the lowest (Idaho, Oregon, Colorado, and New Mexico) (Figure 4) (Miller & K., 2011). One reason for this variation in readmission rates by geographic region may be that some hospitals and/or regions are better at containing and preventing readmissions than others. However, the Dartmouth Institute for Health Policy in Clinical Practice examined the variations of Medicare utilization by geographic region. They found that the capacity (bed supply) of local health systems was seen as the main reason for geographic variations. The supply of hospital beds and number of specialist physicians, not the percentage of elders within a geographic region, explained the differing levels of index hospitalizations and readmissions. The resultant increase in health care costs in high utilization areas, though, did not result in effective care that was deemed to be high quality (Fisher & Wennberg, 2003).

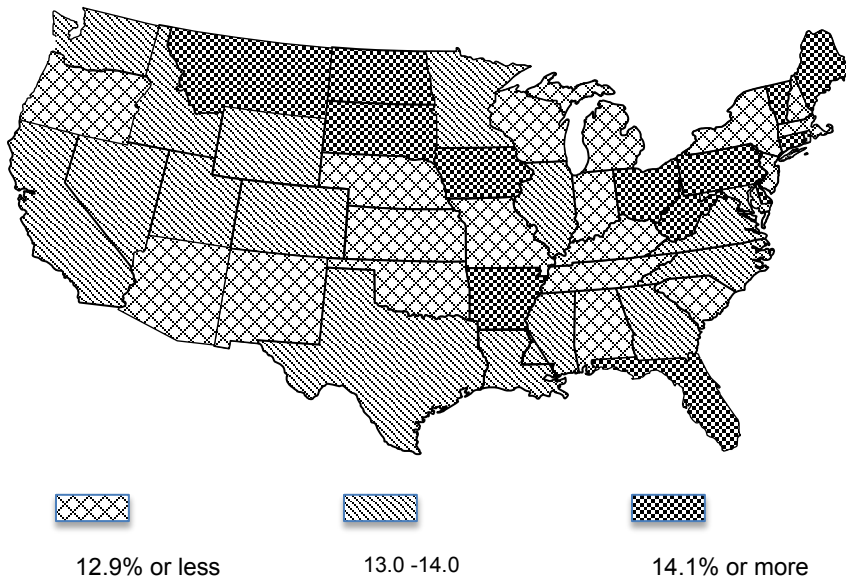
### Summary

To summarize, this chapter describes the history and current legislation that is driving the current resurgence in research and study of hospital readmissions. The factors that contribute to the problem of high readmission rates for our elder population are analyzed and synthesized, as well as possible processes and interventions that can be implemented to reduce the rate of readmission. Previous research and literature reviews have revealed that the causes and solutions vary and that there are multiple facets that must be addressed.

## Readmission Rates by State



*Figure 4.* Readmission rates by state (Miller & K., 2011).



*Figure 5.* Percent distribution for population 65 years and older-2010 census (Hines, 2010).

## CHAPTER 4

### ANALYSIS AND DISCUSSION OF THE RESULTS

The purpose of this study was to examine the variables that predispose the elderly population to hospital readmissions and the interventions that have been employed to reduce the incidence and rate of readmission. This chapter will describe the results of the literature analysis and synthesis of the effectiveness of interventions on the target population.

#### Interpretation of Findings and Discussion

##### *Research Question 1: What are the Predictors of Hospital Readmissions?*

As age increases, so does the risk for readmission. Elders in the oldest-old category (85 years and older) have been shown to have a greater incidence of readmissions. This factor is coupled with the increased risk associated with increased age and the incidence of multiple comorbid conditions (Chu & Pei, 1999). As elders age the number of chronic conditions also increases, placing them at a greater risk for readmission. With this increase in age and chronic conditions there is also an increase in the number of medications and the likelihood of adverse drug reactions which also result in readmission (Morrissey, McElnay, Scott, & McConnell, 2003).

The sociodemographic factors of gender, race, marital status, and education have not been studied extensively. Researchers have found that males and African Americans (MedPac, 2007) are at a greater risk for readmission but these results are not consistent across studies. It may be that males are at a greater risk due to the



caregiving variable wherein most of the males have an informal caregiver that readily identifies a deterioration of their health, resulting in an unplanned readmission.

While some research has shown that the lack of a formal or informal caregiver may lead to an unplanned readmission (Chu & Pei, 1999), other research has revealed that the presence of a caregiver increases the risk of readmission. The mixed results may be due to the fact that the presence of a caregiver leads to the identification of the need for further hospitalization sooner than if the elder lived alone. Conversely, the elder that is without a caregiver may not be able to properly care for themselves, which will result in a deterioration of the condition and hospital readmission. As further evidence of the crucial role of caregivers, research findings from studies of elders discharged to skilled nursing facilities revealed that the time interval from discharge to readmission was shorter than for those elders that had been readmitted from a home setting.

There are seven disease specific conditions that account for 30% of all readmissions (MedPac, 2007; Miller & K., 2011)(Table 4). These conditions are both medical and surgical, and in 2005 accounted for 318,760 admissions with readmissions (MedPac, 2007). Congestive heart failure is the most prevalent health condition that leads to unplanned readmission. Knowing these disease specific causes, CMS has proposed, beginning in fiscal year 2012, to limit the calculation of hospital readmission rates to these seven conditions (CMS, 2010).

Severity and length of stay are intertwined as predictors of readmissions. Elders with a longer than average length of stay due to severity of illness were shown to be at an increased risk for readmission (Anderson, Hanson, & DeVilder, 1996). Shorter

length of stay was also shown to be a risk factor for readmission. It has been argued that the IPPS DRG payment structure of Medicare promotes shorter lengths of stay to increase hospital profits, with the unwanted side effect of unplanned readmission. The tendency for outpatient care indicates that those elders that do experience a hospitalization are at a more acute stage of their disease.

Table 4

*Readmission Rate for Disease Specific Causes*

	<b>Type of Hospitalization</b>	<b>Admission (n)</b>	<b>Readmission Rate</b>
Congestive Heart Failure	Medical	90,273	12.5%
COPD	Medical	52,327	10.7%
Pneumonia	Medical	74,419	9.5%
AMI	Medical	20,866	13.4%
CABG	Surgical	18,534	13.5%
PTCA	Surgical	44,239	10.0%
Other vascular	Surgical	18,029	11.7%

Source: (MedPac, 2007)

Of the variables of healthcare utilization, previous hospitalization was the greatest indicator of risk for readmissions (Morrissey, McElnay, Scott, & McConnell, 2003). Once again, this may actually be an indicator of the severity of the illness coupled with age and number of comorbid conditions.

It is clear that there is no one variable that can be used to pinpoint the risk of readmission for an elder. Each factor is intertwined and can be compounded by the other risk factors.

*Research Question 2: What are the Characteristics of Effective Interventions that Prevent Hospital Readmissions?*

The overriding factor in an effective intervention is continuity of care through the transition from hospital to home or other care setting. Interventions that have shown promise in reducing readmission rates are: care transitions intervention (CTI); reengineered hospital discharge program (RED); and transitional care model (TCM).

### Care Transition Intervention

CTI was designed to be patient centered and to manage the needs of elders who are chronically ill by responding to the needs for assistance of this population during the critical time of transition from the hospital to the home environment. This is accomplished through the use of interdisciplinary teams across settings, sites and health care personnel. The premise is that care for this population does not end with the hospital discharge but should continue seamlessly through all transitions. This is based on four primary domains of:

1. Information transfer
2. Patient and caregiver preparation
3. Self-management support
4. Empowerment to assert preferences

Using these four domains as the basis for the formulation of the CTI, Coleman (2004) et al, developed four “pillars” that were deemed to be the most valuable during the elder’s care transition:

1. Assistance with medication self-management
2. Patient-centered record management

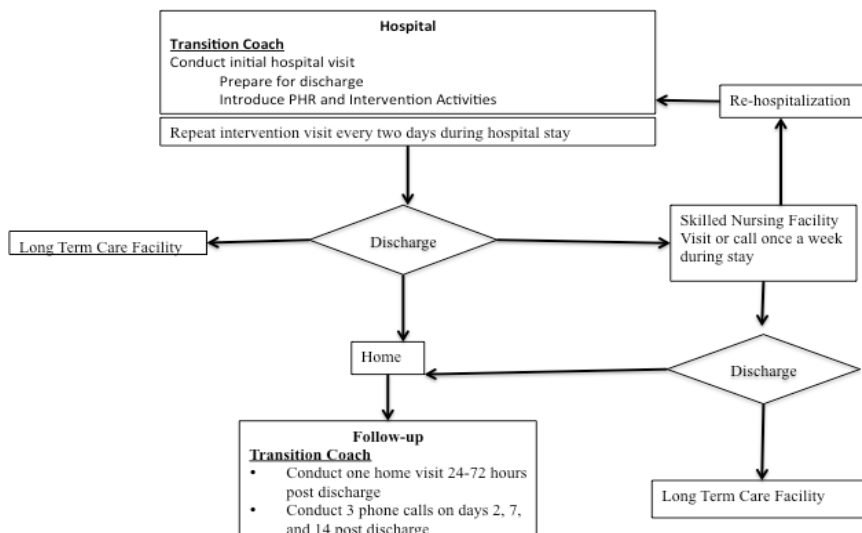
3. Timely follow-up
4. Red flags (Coleman & Berenson, 2004)

CTI accomplishes these four pillars through the use of a nurse transition “coach” and a personal health record (PHR). Both of these approaches are used to empower and educate the elder and their caregiver to ensure and maintain the continuity of care during the transition(s) across settings.

The PHR can be viewed as a comprehensive discharge and medical plan. It not only includes the typical discharge information but also includes the elder’s medical history with their current medications and allergies, a list of warning signs and red flags that pertain to their chronic condition(s), and an area for them to record and document thoughts, questions, and concerns. The difference between the PHR and a physician’s medical record is that the PHR is maintained by the elder with the assistance of the transition coach.

The transition coach is the facilitator of the collaborations between and among the differing disciplines as the elder moves from one care setting to another and from one physician or health care personnel to another. With the elder and their caregiver, the transition coach works to ensure that the proper professionals are in place to coordinate an effective transition, while taking care of critical issues and treatment as well as setting attainable care goals. The primary role of the transition coach is to empower the elder and caregivers by assisting them with communications between the elder/caregiver and health personnel. They are not a care manager but instead they are to be used as a source of information and support.

With this type of structured intervention, the CTI can be tailored to the individual elder and caregiver needs (Figure 6). While the primary domains (as listed above) are addressed for each elder, the content within each domain may be different at each point in the elder's transition.



Source: (Parry, Coleman, Smith, Frank, & Kramer, 2003)

**Figure 6.** Structure of the care transition intervention (Parry, Coleman, Smith, Frank, & Kramer, 2003).

The initial study setting for the CTI was a capitated hospital system located in Colorado. Transition coaches first made contact during the elder's index hospitalization. The goal of the first visit is to introduce the tools and process of the CTI as well as schedule follow up visits for post-discharge. Every week thereafter, in hospital visits were maintained to provide education and continuity in preparation for discharge. Home visits were performed with the elder and their caregiver to provide support and education with medication reconciliation and self management (red flags) being the primary goals. Through the use of the Medication Discrepancy Tool (Appendix C), errors in medication were discussed with the elder and their caregiver and a resolution plan was developed. Plans for resolution might include the elder contacting their health

provider or noting their PHR with a reminder to discuss the issue at their follow-up appointment with their PCP/specialist. As support, the transition coach provided skills to accomplish the plan through education or even role-play.

Table 5

*Care Transitions Intervention Activities by Stage of Intervention*

Stage of Intervention	Medication self-management	Patient Centered Record	Follow Up	Red Flags
Goal	Patient is knowledgeable about medications and has a medication management system	Patient understands and utilizes a Personal Health Record to facilitate communication and ensure continuity of care plan across providers and settings. The patient manages the PHR	Patient schedules and completes follow up visit with Primary Care Physician/Specialist and is empowered to be an active participant in these interactions	Patient is knowledgeable about indications that condition is worsening and knows how to respond
Hospital Visit	Discuss importance of knowing medications and having a system in place	Explain PHR	Recommend Primary Care Physician follow up visit	Discuss symptoms and drug reactions
Home Visit	Reconcile pre- and post hospitalization medication lists. Identify and correct any discrepancies	Review and update PHR. Review discharge summary. Encourage patient to update and share the PHR with Primary Care Physicians/Specialists at follow up visit	Emphasize importance of the follow-up visit and need to provide Primary Care Physician/Specialist with recent hospitalization information. Practice and role play questions for Primary Care Physician/Specialist	Assess condition. Discuss symptoms and side effects of medications
Follow-Up Calls	Answer any remaining medication questions	Remind patient to share PHR with Primary Care Physician/Specialist. Discuss outcome of visit with Primary Care Physician/Specialist	Provide advocacy in getting appointment, if necessary	Reinforce when/if Primary Care Physicians/Specialist should be called.

Source (Parry, Coleman, Smith, Frank, & Kramer, 2003)

Thereafter, the transition coach maintained telephone contact for a period of 28 days. During this period, the transition coach verified that the elder was receiving the appropriate services and follow-up appointments. These telephone calls were also used to review the elder’s progress and to reinforce prior education and use of the PHR.

Elders receiving the CTI experienced a lower rate of readmission than the control group at 30 days post-discharge and a lower cost of care for those that experienced a rehospitalization (Table 6). A subsequent qualitative study revealed that this intervention improved the elder’s and caregiver’s skills for self-management and it also improved confidence in maintaining these skills beyond the initial intervention period.

Table 6

*Utilization and Cost outcomes for CTI\**

Variable	Usual Care Group	Intervention Group	P Value
Readmission	11.9%	8.3%	0.048
Cost Each	\$918	\$784	0.048
Readmission for same diagnosis	4.6%	2.8%	0.18

\*at 30 days post discharge. Coleman, Parry, Chalmers, & Min ( 2006).

Re-Engineered Hospital Discharge Program

The re-engineered hospital discharge program (RED) was developed at Boston University School of Medicine through a grant from the Agency for Health Research and Quality. The backbone of RED is communication, education, complete discharge planning, and reinforcement:

- Educate the elder on their diagnosis throughout the index hospitalization

- Communicate with the elder regarding physician follow up appointments
- Discuss pending lab tests with the elder
- Assist and organize post-discharge services with the elder
- Communicate with elder and physician to confirm medication regimen
- Educate and reinforce elder on procedures for problems and worsening conditions
- Communicate discharge plan summary to PCP and specialist physician
- Reinforce and assess elder’s understanding of discharge instructions
- Follow up with elder post-discharge to reinforce discharge plan and assess medical condition and to assist with problems that have arisen

Nurse discharge advocates (DA) are employed to perform these facilitating functions by creating after-hospital care plans (AHCP), which include follow-up calls with a pharmacist. The results of these three core elements of the initial RED study showed that not only were readmissions reduced for the intervention group, but there was also a cost savings.

Table 7

*Utilization and Cost Outcomes RED*

Variable	Usual Care Group	Intervention Group	P Value
Hospital Utilizations	45.1%	31.4%	0.009
Cost	\$412,544	\$268,942	
Emergency Department Visits	24.5%	16.5%	0.014
Cost	\$21,389	\$11,285	
Readmission Rate	20.7%	14.9%	0.090

Source: (Coleman, Parry, Chalmers, & Min, 2006)



Education of the after-hospital care plan is an important aspect of this intervention. DAs tailored this educational component to their population using pictures and large print font formats, which resulted in an increase in patient comprehension and the ability to provide self care when needed (Table 8).

Table 8

*Patient Comprehension RED*

Health Literacy	Usual Care Group	Intervention Group	P Value
Able to identify discharge diagnosis	70%	79%	0.017
Able to identify PCP name	89%	95%	0.007
Visited PCP	62%	77%	<0.001
How well did you understand how to take your medications after leaving the hospital?*	79%	86%	0.025
How well did you understand your main problem or diagnosis when you left the hospital?*	57%	66%	0.014
How prepared were you to leave the hospital?*	55%	65%	0.013

\*answered on a 5 point likert scale, responses reflect those that answered with the top 2 categories of “very prepared” or “prepared”.

Source: (Coleman, Parry, Chalmers, & Min, 2006)

Transitional Care Model

The transitional care model (TCM) was developed in response to the IOM report *Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century* (Institute of Medicine, 2001), which identified poor care coordination in the current health delivery

system. Effective care during the transition period addresses the needs of the elder and caregiver. Advanced practice nurses (APN) provided comprehensive care, which includes management of the reason for hospitalization as well as chronic comorbid conditions - for 3 months - beginning with discharge planning through home follow-up (Naylor, Broten, Campbell, Maislin, McCauley, & Schwartz, 2004; Naylor, et al., 2009).

The initial randomized control trial was conducted at 6 Philadelphia academic community hospitals during a four-year period. The TCM concentrated on elders with heart failure and included:

1. Orientation and training program led by a multidisciplinary heart failure team
2. Care management strategies
3. National heart failure guidelines

Orientation was provided by a multidisciplinary team that consisted of a geropsychiatrist, clinical nurse specialist, pharmacist, nutritionist, social worker, physical therapist, and cardiologist. The team worked with the APN to assist in the unique needs of the elder and their caregiver, tailoring the care plan throughout the current situation of acute heart failure.

Case management strategies were used to identify the goals of both the elder and their caregiver by providing an individualized plan in collaboration with the PCP/specialist. The case management care plan included - as needed - education, behavior modification for both the elder and caregiver, and coordination across settings by using nurse managers.

National Heart Failure guidelines were used to provide for and design a comprehensive care plan for this group. Elders with multiple chronic conditions are

targeted to be provided with a comprehensive management plan that would meet their needs and provide therapy.

The TCM provides for the initial APN visit to occur within 24 hours of index hospitalization and then at least daily throughout the elder's hospital stay. Thereafter, the APN targeted a minimum of 8 visits during the ensuing 90 days post discharge. The first visit was at 24 hours post-discharge with a minimum weekly visit for the first month. For the second and third month the TCM provides for at least bi weekly visits and access via telephone 7 days a week. If the elder is readmitted during this time daily visits from the APN resume.

During the index hospitalization, the APN focused on collaborating the PCP/specialist to optimize the elder's health status at discharge and arrange for home care needs. There was special emphasis placed on the prevention of further decline in the elder's functional status as well as reconciliation of medications. Since the APN had daily contact with the elder and their caregiver, they were able to provide direction to the nursing staff to focus their activities during the index hospitalization.

Post discharge APNs assessed the health status to promptly identify changes. They monitored the elder with the goal of preventing medication and medical errors in order to ensure a smooth transition. This provided both the elder and the caregiver a safety net during the vulnerable time of transition.

The motivation for elders and caregivers to adhere to the case management plan was the combination of goals that they had set. To accomplish this, the APN provided audio and video of educational sessions for the elder and caregivers to review. These also included materials on how to manage comorbid conditions.

Results of the randomized control trial of the transitional care management intervention at 6 Philadelphia hospitals were:

Table 9

*Readmission and Hospital Days 1 Year after Index Hospitalization Discharge*

<b>Variable</b>	<b>Control Group</b>	<b>Intervention Group</b>	<b>P Value</b>
Patient readmission	55.4%	44.9%	0.12
Hospital Days	970	588	0.071

Source: (Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004).

Table 10

*Cost Analysis 1 Year after Index Hospitalization*

<b>Parameter</b>	<b>Control Group (n=121)</b>	<b>Intervention Group (n=118)</b>	<b>P Value</b>
Rehospitalizations			
Index-related	\$314,955	\$175,960	0.152
Comorbidity-related	\$498,110	\$175,840	0.015
New health problem	\$246,135	\$235,453	0.997
Total hospitalization	\$1,065,927	\$587,253	0.088
Acute Care Visits			
Physician Office	\$5,169	\$4,549	0.636
Emergency Department	\$5,650	\$1,780	0.105

Source: (Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004).

## Discussion of Hypotheses

### *Hypothesis 1: Adequate Care Transition Process Will Decrease the Number of Readmissions*

The results of studies reviewed supports the hypothesis that adequate care transition process will decrease the number of readmissions. The results demonstrate that elders receiving care during the transition process from hospital to home or alternate care settings were less likely to be readmitted. While each of the three interventions featured in this section have shown a decrease in readmission, only the care transition intervention (CTI) had a statistically significant decrease in their readmission rate during the study period (11.9% v 8.3%) (Coleman, Parry, Chalmers, & Min, 2006).

Each of the interventions studied were led by nurses, i.e. transition coach, discharge advocate, and advanced practice nurse, and employed a variety of methods to provide continuity through and across care settings. The difference with CTI is that the focus of the intervention is on empowering the elder to manage their own care. While there is no statistical evidence that suggests that one factor is more important than another, analysis of the differing interventions can lead to an adequate understanding of the differences between the three protocols studied and allow inference through the extrapolation of those factors that have contributed to a better outcome compared with others.

CTI addresses both the system and patient factors associated with high levels of readmission. Literature has shown that discharge instructions frequently lack pending lab tests (Roy, Poon, Karson, Ladak-Merchant, Johnson, & Maviglia, 2005) and demonstrate inadequate medication reconciliation. Primary care physicians and

specialists are often not notified of the elder's discharge from index hospitalization or of the discharge instruction in a timely manner (Ornstein, Smith, Foer, Lopez-Cantor, & Soriano, 2011; Foster et al., 2003). CTI addresses both of the issues through the use of the personal health record, which allows the elder and their caregiver to direct the communication with their PCP/specialist.

CTI differs from the RED and TCM interventions in that it tailors its personal health record for each elder and their caregiver and is a continuous progression of the elder's health status. The PHR is also used as the means for self-management and preparation for discharge and follow up PCP/specialist visits.

While not statistically significant, the TCM and RED also both showed a decrease in hospital readmissions (Tables 7 and 9). It appears that the act of providing an increased level of attention to the transition of our elder population does decrease the risk for readmission. The difference between the models referenced is the level of readmission that was thwarted.

Adequacy is a spurious term and cannot be supported due to the design of this study. It could be argued that reducing readmission for one of our elders would be adequate but this is not the case if we look at this in the context of public policy (Medicare). The adequacy of readmission reduction under the proposed PPA ACA is still in its benchmarking phase with no clear mean yet established, but the WHO has estimated that providing discharge planning across the continuum of hospital to community can reduce readmission rates by about 20% (Parker, 2005).

## *Hypothesis 2: Patient Follow-Up Will Decrease the Number of Hospital Readmissions*

The results of the studies reviewed supports the hypothesis that patient follow-up will decrease the number of hospital readmissions. Each of the interventions reviewed included some form of patient follow-up and showed a decrease in the incidence of hospital readmission.

Of the three highlighted interventions - TCM, RED, and CTI - each used a nurse professional to perform the follow-up. Only the CTI intervention had a statistically significant reduction in readmission but the TCM and RED also showed a reduction. Follow-up is most effective when performed 24 to 72 hours post-discharge and is continued for a specified time thereafter.

The key factors that should be included in follow-up that have been revealed by the literature review and the interventions studied are medication reconciliation and elder and caregiver support. Discharge summaries often lack pertinent information regarding medication, including changes during the index hospital stay and “red flags” that indicate a medication problem (Coleman, Parry, Chalmers, & Min, 2006; Roy, Poon, Karson, Ladak-Merchant, Johnson, & Maviglia, 2005).

Follow-up also encompasses care provided by the elder’s PCP/specialist. This care is lacking when the PCP/specialist is not informed of the elder’s health status through the discharge summary and must rely on the elder or caregivers for important medical information (van Walraven, Seth, & Laupacis, 2002).

*Hypothesis 3: Patient Transition to Post-Acute or Long-Term Skilled Nursing Care Will Reduce the Number of Hospital Readmissions*

Neither the interventions analyzed nor the analysis of the literature provide support for this hypothesis. This lack of support is not a result of the studies performed but rather a lack of available information. Elders from long-term skilled nursing care are conspicuously excluded from these studies. It is not known if this is due to the structure of Medicare payments or, the belief that there already exists a continuity of care, or the fact that elders who reside within these facilities are considered frail and thereby likely to have multiple hospital readmissions. It could also be that studies that included this population of elders did not show a positive result and were therefore not published.

Literature and interventions analyzed did include an elder's short term stay in sub acute/rehabilitation facilities. The results of these studies are mixed and provide no clear indication of the effectiveness of this level of support.

*Hypothesis 4: Age and Increased Number of Comorbid Conditions Will Negatively Affect the Risk of Readmission*

Literature reviewed supports the hypothesis that as age and the number of comorbid conditions increase there is a negative effect on the risk for readmission. Elders with multiple comorbid chronic conditions are at a 34% greater risk of readmission (Soeken, Prescott, & Herron, 1991). Review of Jencks et al (2009) provides support for this hypothesis, which showed that the oldest-old (85 and older) are at greater risk for hospital readmission.



## Summary

In this chapter, the analysis and synthesis of literature and published interventions was used to describe the factors that place elders at risk for hospital readmissions and the discussion of three of the interventions analyzed that included the most comprehensive plans providing transitional care. In addition to a discussion of each research question, each hypothesis was also addressed.

## CHAPTER 5

### SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Hospital readmission is an undesirable outcome of acute hospital stays for our aging population. Providing transitional care to older adults reduces their risk of readmission and the overall cost of care supported by the population, within the United States being Medicare. Post-discharge follow-up is associated with reduced risk for readmission. Follow up, however, is not a one sided process the elder and caregivers must be willing to take charge of their own health through self-management.

The purpose of this review was to explore the factors (organizational and social) and conditions that contribute to hospital readmissions of our elder population. Once this is understood, designing and implementing new and previously validated interventions can begin. However, the literature is lacking in consensus regarding which processes and interventions are most effective. Validated data collection instruments are needed to determine which elders are at risk for readmission while they are still undergoing their index hospitalization. While this review did uncover various instruments that may be used to determine risk of readmission, the sample sizes of these studies were not large to enough to statistically validate these instruments. It is further suggested that transitional care plans be standardized among and within different hospital settings.

Overall analysis of interventions did not reveal the “gold standard” for consistent reduction in readmission rates: however, this review has revealed that there needs to be a protocol in place that spans and coordinates the hospital to home or alternate care settings through the use of a comprehensive discharge or transition plan. Main

components of the comprehensive discharge or transition plan should include, as determined in the literature analysis, the use of multidisciplinary teams, transition coordinators, and elder and caregiver empowerment and education across the hospital to home or alternate care setting.

The discharge process is only one element in the total overall care of elders who are moving through the maze of hospital to alternate care setting. The impact of the availability of services provided within the community, social services, rehabilitation, primary care, nursing care, and family/caregiver can affect the elder and their risk for readmission. Interventions that have shown a marked reduction in readmissions in a setting may not be appropriate where there is effective community and family support already in place. It is therefore imperative that, before any intervention is put in place, an understanding of the local health and social support systems is necessary to provide appropriate protocols.

### Implications

With the aging of the population worldwide and the changes to the United States Medicare payment system, it is imperative that hospital readmissions be reduced. Elder transition from hospital to home or alternate care setting following discharge should be addressed. Specifically, a comprehensive transition discharge program should be implemented and standardized across different settings and within hospitals. This should include care at the start of the index hospitalization led by a gerontologically trained transition leader with access to a multidisciplinary team.

Further research is also needed to determine which of the factors that are presented at time of index hospitalization may result in readmission. Among components that should be investigated are age, caregiver status, number of chronic conditions, medication regimen, length of stay as it relates to severity of health condition, and previous hospitalizations. From this research a validated screening tool should be developed that spans across ages and health conditions.

### Limitations of the Study

Since this study has been an analysis and synthesis of published literature, it is limited in its scope. It is very likely that research resulting in a negative outcome has not been published and is therefore not available for review. Further studies and interventions that are based on this review will not have the benefit of learning from other's mistakes.

Retrospective studies included in this literature review may already be outdated. The implementation and ever-changing face of medicine and increases in medical knowledge may alter the results found in this review. As the availability of improved medical procedures becomes mainstreamed, the number of chronic conditions and medication regimens may change as will treatment protocols.

### Recommendations

The results of this literature review suggest that future research is needed to refine effective protocols of comprehensive transition planning. First, research regarding the variable of age has traditionally been coupled with chronic conditions,

resulting in the finding that as age increases so does the risk for readmission. Future research should focus on detaching age from chronic conditions to determine if in fact increasing age is a determining variable for readmission.

Secondly, future research should consider the payment structure of Medicare. The current payment structure is disjointed, with each transitional phase being reimbursed independently. Trials should be designed to implement a continuous payment structure for the care of elders across their transition. This, of course, can only be implemented with the cooperation of the Centers for Medicare and Medicaid under a demonstration process. A positive outcome would have implications for future public policy.

Lastly, the present study only used previously published data and protocols. Future research should focus on improving the protocols from this previous research, in particular the CTI, RED, and TCM approaches to transitional care. As Medicare does not require that the transitional lead be a nurse, further research is needed to implement the above interventions using a transition trained gerontologist.

## CHAPTER 6

### PROPOSED POLICY CHANGES AND FUTURE RESEARCH

#### Proposed Policy Change

##### *Background*

In 2008, the United States ranked #1 in total expenditures on health, as a percentage of GDP health care costs was 15.2%, which increased from 13.4% in 2000 (World Health Organization, 2011). Only Nauru and the Marshal Islands, at 14.0% each, were close to the expenditures of the United States (World Health Organization, 2011). Norway is the only country that exceeds the United States estimated on a per capita expense for healthcare at US\$8,019 v US\$7,164, with Switzerland trailing at US\$6,988. What we are really obtaining for our high GDP expenditure and per capita expense is substandard health care. In 2000, the last year of health rankings provided by the World Health Organization, the United States was ranked #37 of the world's health systems behind, France (#1), Italy (#2), Norway (#11), United Kingdom (#18), Andorra (#4) and Colombia (#22) (World Health Organization, 2000). Of the industrialized countries the United States has the least effective health system while it spends the most per capita, and it is the only industrialized country that does not provide health care for ALL of its citizens. How can it be expected that the United States will provide for our elder population when it won't provide for our children?

Given our current restructuring of Medicare and the continuing debate over health care reform, it is to our benefit to investigate, and possibly learn from, the similarities and differences between the United States -#37- and France who received a #1 ranking in health by the World Health Organization.

### *Similarities and Differences between France (#1) v United States (#37)*

As in the US, the majority of French physicians are independent and provide care to any patient they choose with complete freedom. Beneficiaries have the right to choose the type -PCP or specialist- of physician they have attend to them. Fees are covered by a mixture of public and private insurance that is shared by both the employer and employee.

Unlike in the US, payment of premiums in France is based on the beneficiary's wages, with an average citizen paying 7% of their total pay for health insurance and an employer contributing of 13%. These funds, also unlike in the U.S., are funneled into a quasi-public health insurance company (Dutton, 2007), which are administered with the input and cooperation from both employer representatives and employee representatives.

In addition to a public health insurance company, France also has approximately 300 private health insurance providers, which work to compliment the public health insurance company by providing supplementary payments for medical fees that are not covered under the public fund.

Hospitals in France are mostly in the public sector and approximately one third of all physicians are salaried.

The French healthcare system is considered one of the most expensive healthcare systems in the world, yet it is far outpaced by the United States. France spends \$2,047 per capita (PPP) while the United States spends \$4,095 per capita (PPP) on health care. This difference is mainly due to the wage differential between US physicians and those practicing in France. US physicians receive, on average, five

times the average American citizen, while French physicians earn two times the average.

This lower average wage is allayed by a tort adverse legal system that lends itself to lower malpractice premiums, and while French medical schools are still difficult to gain admission to, they are essentially tuition free. Therefore, the physician graduates with little or no debt and into a system of low cost practices.

Administrative costs in France, at a low 5%, are another reason that there is such a big difference in per capita spending, when compared to the US's 13%. One of the main reasons for this low administrative cost is the previously agreed upon schedule of fees and nationally standardized billing and reimbursement procedures, as well as the fact that the national convention provides for preapproved physician services. This is unlike the US experience with insurance companies which require "gatekeeper" procedures and question physicians' prescriptive abilities. In addition to the lower overall administrative costs, this coordination of care between the reimbursement mechanism in France and the physicians has resulted in a lower overall readmission rate of 14.2% for patients 75 and older (Laniece, et al., 2008).

In 2000, 16% of all American had no health insurance coverage. France has not had that many citizens uninsured since the 1960s. In 1980 they reached 99% coverage and in 2000 enacted laws that would provide health coverage to the remaining 1%. This astonishing 100% coverage is one of the reasons for Frances' low per capita cost. Contrary to reason, the more you insure the more it does not cost where healthcare is concerned.

Medicare is not the only contributor to our current health ranking; private health



insurance companies have also perpetuated this high cost, low quality system and should also be part of the solution. However, for the purposes of this dissertation, only Medicare will be discussed but it bears repeating that sustainable changes cannot be accomplished without drastic alterations to both private and public systems of healthcare.

Part of the current healthcare initiatives to increase quality and reduce hospital readmissions while reducing health care costs is the introduction of VBP P4P, but this measure alone does not reduce hospital readmissions. As discussed in Chapter 3, research has shown that one method for reducing readmissions is cooperation and care coordination among and between healthcare personnel across settings.

Medicare, under its current payment approach, isolates each individual care setting into a separate silo for payment. This disjointed system of payment is what drives and perpetuates the lack of collaboration among healthcare professionals. The Medicare payment structure is set up to pay for each professional service (inpatient hospital care, physicians, post acute care) and does not provide for, promote, or reward coordination across or among settings. Not only does this approach not promote care integration or collaboration also results in errors that place our elder population at risk for hospital readmissions, but also future health crises, and a lower overall quality of life. Because of this we must address these payment structures and find a way to integrate and coordinate care through creating new payment methods and care coordination structures.

There has recently been some glimmer of hope in the form of an effort to thwart the lack of care coordination across settings. In an effort to reduce high readmission

rates among our elder population, with the recognition that the period of transition is their most vulnerable, CMS has implemented, through their Quality Improvement Organizations (QIO), a Care Transition Program for Medicare beneficiaries with “relatively” high readmission rates (Stone & Hoffman, 2010). The program has the goal to test intervention effectiveness across the transition, starting in the hospital through discharge and ending at the SNF or home. Initially these demonstration projects had a timeline for completion with a final report issued in 2011, but the wheels of government turn ever so slowly. CMS has not issued its final report and is currently taking additional applications for this demonstration program.

Under the QIO care transition program through CMS, there is also only minimal guidance of how to achieve the goal of reducing preventable readmissions by 40% (CMS Hospital Pay-for-Performance Workgroup, 2007). Maybe it’s our culture of maintaining the state’s rights or maybe it’s our ego, but without an integrated, standardized health system of care how can we be assured that our elder population is being cared for across the continuum of services. What we do know is that there must be improvements across a wide range of systems that views the elder as the most important part of the equation.

One method of achieving unification across providers would be to bundle payments. This is not a new idea: in fact, the Congressional Research Service in their September 21, 2010 report to Congress provided bundled payments as an alternative model proposal (Stone & Hoffman, 2010). As proposed, bundled payments would be similar to the current DRG IPPS system, but across a care continuum, and they would follow the elder through their care plan from hospital to home care. A drawback to this

form of payment structure is that it remains a reward for episodes of care and does not reward prevention or chronic care. This model also fails to address the issue of high hospital readmission rates in fact, no model proposed or implemented by Medicare truly has the elder's health, well being and quality of life at the center of its' reform.

As a provision of the Affordable Care Act, Medicare has modified its payment structures and has established a number of new programs that are specifically designed to reduce readmission rates. The Hospital Readmission Reduction Program implements the P4P policies (discussed in chapter 3) designed to penalize hospitals with high readmission rates, while the Community-Based Care Transitions Program is intended to reduce PPRs through the integration of social services during the transition period. Finally, the Independence at Home project provides primary care and social services through and interdisciplinary teams for those at high risk on a longitudinal basis. It appears that once again we have traded one Medicare system of payments that are channeled into discrete silos for another system that is, while improved, is still channeling payments into silos. But these silos though do appear better coordinated and at least provide long-term care for those that are most at risk.

#### Current Demonstration Programs

Community-based care transition program (CCTP) is a 5 year nationwide project that targets the quality and safety of care transitions post discharge. The focus is on the use of community-based organizations to reduce hospital readmissions. The philosophy behind this demonstration project is that partnerships, which have traditionally been a non-reimbursed Medicare expense, will be reimbursable and will

prove to reduce hospital readmission rates by providing coordinated care during vulnerable transition periods across care settings. This project is, however, targeting those areas, groups, and conditions that have traditionally high readmission rates or are medically underserved. The hope is that through this demonstration project insights into methods for care transitions and partnerships will result in a lower readmission rate and Medicare cost savings (Stone & Hoffman, 2010).

Independence at home demonstration program (IAHP) is a 3-year project that is physician and nurse practitioner directed to evaluate the service delivery models for chronically ill home-bound beneficiaries. The aim is to provide intense care that is coordinated and continuous for 24 hours a day, 7 days in home through a multidisciplinary team. The IAHP is also testing a novel approach to revenue sharing in which health care teams share in revenue for meeting health and quality targets. While this project may have a beneficial effect on reducing readmission rates since the target patient cohort are those most at risk, it may also have other measurable effects for improving quality, efficiency, and cost of care (Stone & Hoffman, 2010).

While an integrated payment structure would promote better collaborative care for our elders, this is not the only solution to the greater looming problem of how to care for this ever-growing population segment and we must look beyond economics to the human cost. The big unanswered question is: if Medicare provided no cost, comprehensive care, including preventative services, would our seniors take advantage of the health care offered and if so would they be healthier and have an increased health-related quality of life?

Reform to CMS is to create incentives for efficiency in spending and, in the case

of the P4P payment model, would provide rewards or penalties to hospitals based on readmission rates in the hopes that this model would improve quality of care. While it is not within the scope of this paper to determine the effectiveness of this form of payment to hospitals, it seems to fall short of the goal of providing “comprehensive care” to our elder population as stated by President Obama in his June 2009 address to the American Medical Association (Obama, 2009)? Comprehensive does not stop at the hospital door, nor does it start at the hospital door. Care should not be a priority in the instance of an acute episode but should be a continuing priority. We are heading in that direction, though, with the long overdue provision to provide preventative care for our elder population. If Medicare truly had our elders’ health and quality of life as their main concern, it would make it a priority to reduce hospital admissions overall not just hospital readmission and to increase our elder population’s health-related quality of life. Current and proposed policy changes to Medicare are creating pressure for improved efficiency and quality but fall short of an ideal healthcare system. In a 2009 statement before the Senate Finance Committee on Reforming America’s Health Care Delivery System, the chairman of MedPac, Glenn Hackbarth, recommended that Medicare adopt the following tools to create efficiency and improve quality:

Using payments as pressure for efficiency and quality. The upcoming implementation of the P4P program will be the first test of this “tool” with the reward and penalty structure that is being instituted for hospital readmission rates. In addition, MedPac has suggested that payment “updates” (decreases) should be used to “create more pressure on those with higher costs” (Hackbarth, 2009).

One questions the wisdom of this philosophy: what cost will be paid to constrain payment increase? Will the care for our elder population be smarter, better, worse?

In the absence of scrapping the current outmoded Medicare system, there are fundamental changes that can be implemented to change the focus from profit to patient care:

1. Reform the Medicare system to more accurately reflect our industrialized partner countries through the use of either employee physicians and state run hospitals or the change to a single payer system set on a predetermined schedule of charges. Physicians would then be desensitized to the overall profit structure of individual fees and payments.
2. Provide tort and tuition relief for physicians.
3. Promote primary care and geriatric physician practices. Research has shown that access to primary care can reduce adverse outcomes (Baicker & Chandra, 2004) and countries with a greater presence of primary care have lower rates of premature death from treatable conditions (Starfield & Shi, 2002). Specialty geriatric training of Medicare physicians would provide patients access to high quality primary care, thereby reducing, but not eliminating the need for high cost specialty care.

It can be agreed that resources are limited and what must be done is determine how best to distribute our scarce resources to be most effectively. Through public policy we must determine how best to fund and distribute our limited economic resources, while research must not only look at the effectiveness of those resources but must also go further to determine the human factor to any changes made through public policy. With regard to the human element, it must be determined how changes affect not only the overall health, but also the health-related quality of life of our elders.

#### Proposed Framework for Future Research

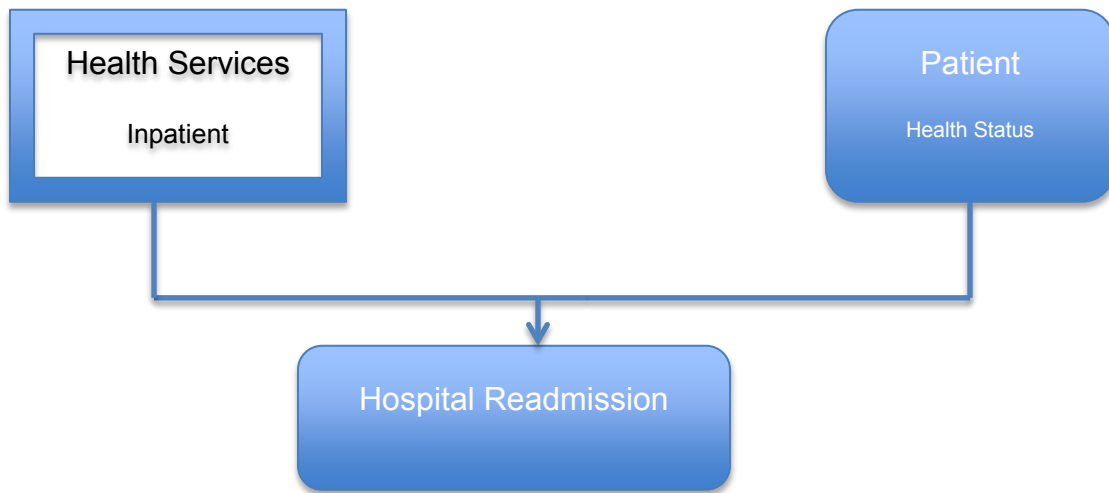
Contrary to the assertions of current and proposed policies, hospital readmissions are not a measure of quality, nor are they a measure of an elders health status. It is a measure of an elder's use of health services. While the use of health services is influenced by the quality of care that influences the elder's health status, it is also a

function of the availability and access to health services and the patient level resources including income and/or social support. Until these determinants are recognized as underlying causes of readmissions, all of the demonstration projects evaluating discharge planning, care coordination, and payment bundling will not truly reveal the entire picture of the framework of all cause hospital readmission. While these causes go unrecognized, hospitals will have restricted success in reducing readmissions for elders with limited access to medical or patient level resources.

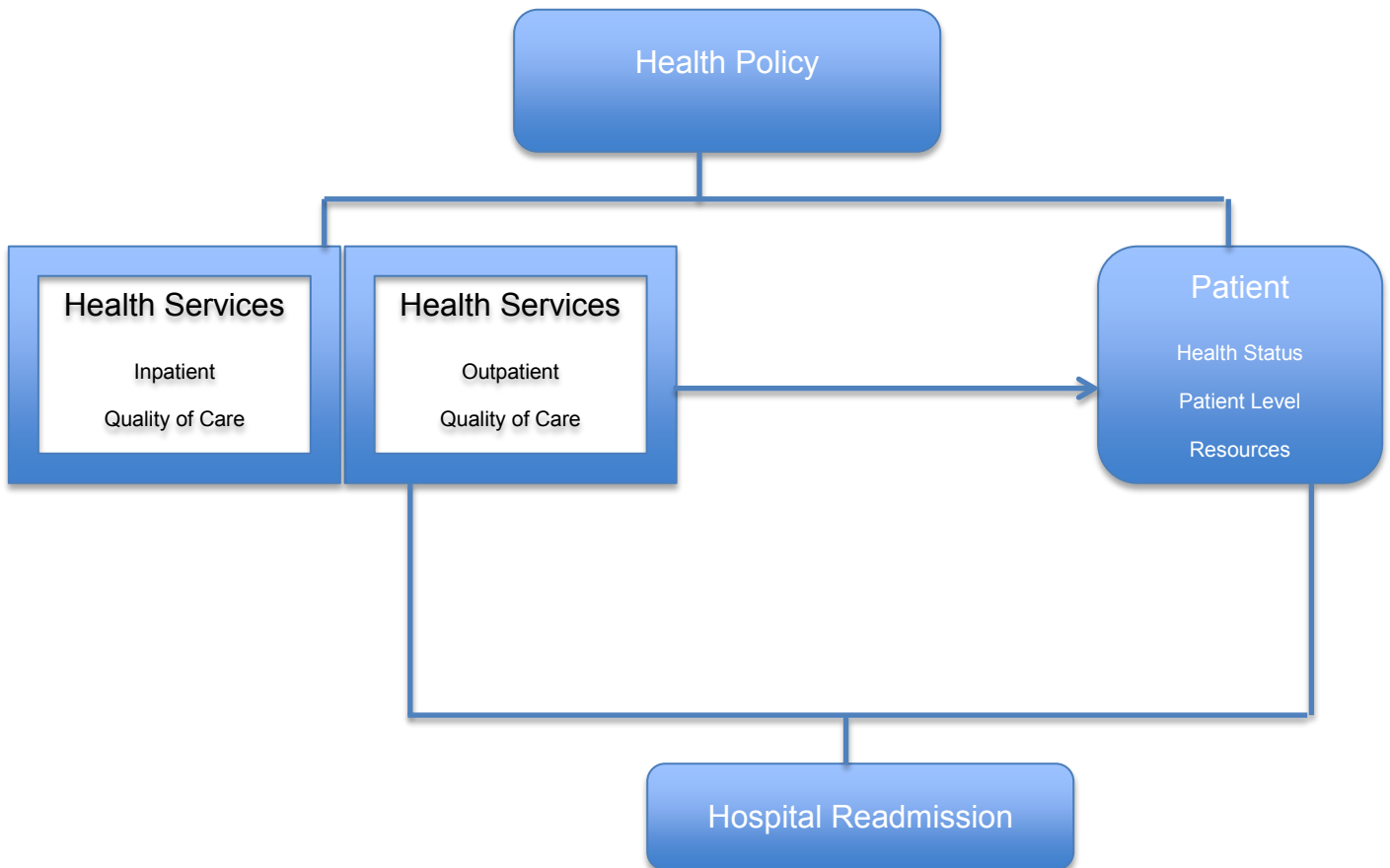
#### Assumptions of Proposed Framework

Health policy influences both health services and the patient with the resulting quality and access to care directly affecting the patient's health status and their level of resources. Each of these in turn affects the hospital readmission rates. Many researchers have sought to determine the clinical factors that predispose our elders to risk of readmission. Few, if any, have looked at access to health services and patient level factors to determine the role that they play in an elders risk for readmission regardless of underlying disease causation or chronic comorbidities. Of the 26 instruments reviewed by Kansagara 5 used access to care or limited access to care as a determining variable for risk of readmission and only 2 used caregiver or social support as a determining variable (Kansagara, et al., 2011). There was no single instrument that used both.

Current Framework being utilized under Medicare P4P



Proposed Framework

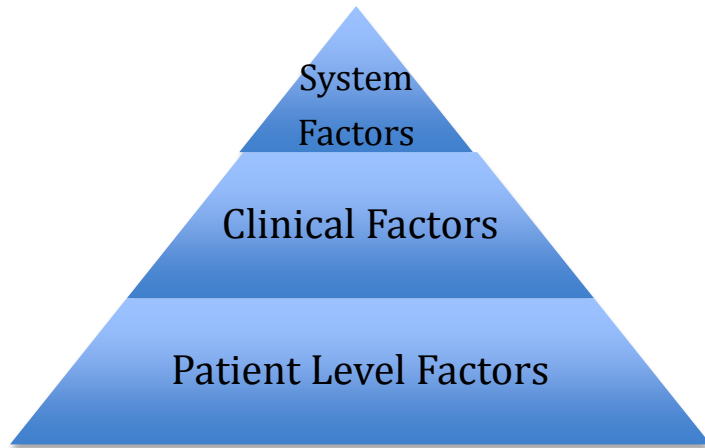




Research to reduce hospital readmissions first focuses on the elder at their index hospitalization. The proposed framework hypothesis is that to sustain reduced hospital readmissions, the elder must have access to quality ambulatory care. It is further hypothesized that without access to the proper resources at the patient level, prevention of hospital readmissions is not sustainable over time. Access to care and patient level resources are defined as:

1. Access to care: An elder may have good access to high quality inpatient care but limited access to quality or even low quality ambulatory care. The elder in this instance is more likely to access medical care through the hospital ED, resulting in possible readmission.
2. Patient level resources: The medical and patient level conditions are a determinant in the hospital readmission. In addition to health status, access to stable housing, social support, and even food are factors that affect an elder's ability to comply with the initial discharge care plan and recommendations.

It is not until we determine which risk factors predispose populations to hospital readmission can we ascertain how to effectively intercede to reduce those readmissions. What works for one population may not be effective for others and the determination of their inherent risk for readmission may not be solely due to patient level factors, but that is where we must start. The basic human need must first be met particularly in times of illness. Once the basic necessities are met, higher level care and interventions will be effective (Figure 7).



*Figure 7.* Hierarchal levels of need in healthcare.

Reducing hospital readmissions relies on a hierarchal process of determinants. Lyratzopoulos et al (2005) determined that there are 4 categories that influenced hospital readmissions (patient clinical, social, and system) (Lyratzopoulos, Havelly, Gemmell, & Cook, 2005). Building on Lyratzopoulos et al's, (2005) 4 categories that influence hospital readmissions, this model proposes that these processes (categories) are not equal but dependent upon each other. The base for determination of any risk for hospital readmission must be the patient level factors. Until those factors of patient level resources are met, one cannot move up the pyramid to determine the appropriateness of care, assessment and treatment of the medical problem as well as the management and treatment protocols employed while in the hospital environment and after discharge. Without addressing the base of the pyramid and solidifying the risk factors at the bottom, the entire system will become unstable and topple. By the time an elder is ready for discharge it is already too late to effect a lasting change for their risk of hospital readmission. What must be done is strengthen the base of the pyramid before the first index hospitalization and in doing so, interventions and care transition

strategies will have their greatest and most long lasting effects to reduce hospital readmissions.

The applications of this framework are twofold:

1. It can be used as a determining factor for risk of readmission.
2. It can be used by case managers as an organizational tool to prioritize the needs of elders upon discharge from index hospitalization. Using the pyramid analogy, the highest priority is to maintain and improve the patient level factors. It is by providing this solid base that the remaining layers of the pyramid stabilize and become stronger. For a lasting effect to be realized patient level factors must be addressed first.

### Conclusion

It is clear that our healthcare system is in a state of flux with the changes that we have already seen and those that are expected to occur. These changes are generally enacted in order to control the spiraling cost of healthcare, at the expense of the human element of healthcare. There is no healthcare system that has all of the answers; France's healthcare system is ranked as #1 by the World Health Organization, but their system may or may not be a viable option for the United States and the unplanned hospital readmission rate is still at 14.2% (Laniece, et al., 2008), Massachusetts currently has the closest healthcare system to the United States amendments and restructuring changes as proposed under the Affordable Care Act, but results for readmission rates in that state are mixed. So the issue is how to most effectively enact change that will benefit both the person and the system.

Through pilot and demonstration projects CMS is working toward making changes to lower the readmission rates under the guise of ensuring and improving quality. These projects are actually a rehash of work that has already been performed by Jencks, Coleman, and Naylor. CMS recognizes the transition programs that these experts have formulated and through their demonstration programs they are gathering additional evidence for their effectiveness. This is in the face of already statistically significant findings that have shown that a program, any program, that follows and empowers the elder, from hospital through discharge and recovery will reduce the rate of readmission.

The process to recovery should be viewed as a continuum of care from hospital stay through regaining of health and, more importantly, health-related quality of life. This cannot happen as long as the Medicare system of payments remains in their own silos. It may be that with successful demonstration projects the mechanism of payments will change, but for now there is still no accountability or collaboration during the crucial times of transition. It must be recognized that the proposed P4P payment structures for hospital readmissions will penalize the hospital system for events that they currently have absolutely no control over. The CMS demonstration projects, as well as gathering data on effectiveness, have also circumvented the usual payment silos that Medicare is chained to. If these projects are deemed a success, they may, lead to one of the most important changes to Medicare wherein the money follows the elder and therefore the accountability for their continuing health improvement will be placed in control of a collaborating multidisciplinary team of caregivers rather than the current disjointed system where care ends at the hospital door.

It should be obvious to everyone that collaboration is needed among and within our healthcare community, but with all the rhetoric that is now espoused regarding cutting costs and the future of Medicare there is one important group who is being neglected-our elders. Change may bring about different structures and cost savings but it does not improve the underlying health. In order to sustain, improve, and stave off the increasing incidences of hospital readmission, the overall health of our elder population must be improved by providing them comprehensive affordable health care and a standard of living that does not prompt them to have to make the decision of medicine v food.

APPENDIX A  
MEASURES FOR HOSPITAL VALUE BASED PURCHASING

**Measure:**

Heart Patients Given a Prescription for Drugs called Statins at Discharge. (AMI-10: Statin Prescribed at Discharge)

Central Line-associated Blood Stream Infection

Surgical Site Infections

Immunization for Influenza

Immunization for Pneumonia

Percent of patients with an ischemic stroke or a hemorrhagic stroke and who are non-ambulatory should start receiving deep vein thrombosis (DVT) prophylaxis by end of hospital day two.

Percent of patients with an ischemic stroke prescribed antithrombotic therapy at discharge.

Percent of patients with an ischemic stroke with atrial fibrillation discharged on anticoagulation therapy.

Percent of acute ischemic stroke patients who arrive at the hospital within 120 minutes (2 hours) of time last known well and for whom IV t-PA was initiated at this hospital within 180 minutes (3 hours) of time last known well.

Percent of patients with ischemic stroke who receive antithrombotic therapy by the end of hospital day two.

Percent of ischemic stroke patients with LDL  $\geq$  100 mg/dL, or LDL not measured, or, who were on cholesterol reducing therapy prior to hospitalization are discharged on a statin medication.

Percent of patients with ischemic or hemorrhagic stroke or their caregivers who were given education or educational materials during the hospital stay addressing all of the following: personal risk factors for stroke, warning signs for stroke, activation of emergency.

Percent of patients with an ischemic stroke or hemorrhagic stroke who were assessed for rehabilitation services.

Percent of patients who received venous thromboembolism (VTE) prophylaxis or have documentation why no VTE prophylaxis was given the day of or the day after hospital admission or surgery end date for surgeries that start the day of or the day after hospital admission.

Percent of patients who received VTE prophylaxis or have documentation why no VTE prophylaxis was

<p>given the day of or the day after the initial admission (or transfer) to the Intensive Care Unit (ICU) or surgery end date for surgeries that start the day of or the day after ICU admission (or transfer).</p>
<p>Percent of patients diagnosed with confirmed VTE who received an overlap of parenteral (intravenous [IV] or subcutaneous [subcu]) anticoagulation and warfarin therapy. For patients who received less than 5 days of overlap therapy, they must be discharged on both medications. Overlap therapy must be administered for at least 5 days with an international normalized ratio (INR) = 2 prior to discontinuation of the parenteral anticoagulation therapy or the patient must be discharged on both medications.</p>
<p>Percent of patients diagnosed with confirmed VTE who received intravenous (IV) UFH therapy dosages AND had their platelet counts monitored using defined parameters such as a nomogram.</p>
<p>Percent of patients diagnosed with confirmed VTE that are discharged to home, to home with home health or home hospice on warfarin with written discharge instructions that address all four criteria: Compliance issues, dietary advice, follow-up monitoring, and information about the potential for adverse drug reactions/interactions.</p>
<p>Percent of patients diagnosed with confirmed VTE during hospitalization (not present on arrival) who did not receive VTE prophylaxis between hospital admission and the day before the VTE diagnostic testing order date.</p>
<p>Methicillin-resistant Staphylococcus aureus (MRSA) infection with onset in the community in an individual lacking established MRSA risk factors, such as recent hospitalization, surgery, residence in a long-term care facility, receipt of dialysis, or presence of invasive medical devices.</p>
<p>Clostridium difficile is responsible for a spectrum of C. difficile infections (CDI) [originally referred to as C. difficile-associated disease or CDAD], including uncomplicated diarrhea, pseudomembranous colitis, and toxic megacolon which can, in some instances, lead to sepsis and even death.</p>
<p>The measure enables a healthcare facility to record information on influenza vaccination status.</p>
<p>Number of catheter associated urinary tract infection (UTIs).</p>



APPENDIX B  
MEDICARE DISCHARGE PLANNING

**§482.43 Condition of participation: Discharge planning.**

The hospital must have in effect a discharge planning process that applies to all patients. The hospital's policies and procedures must be specified in writing.

(a) *Standard: Identification of patients in need of discharge planning.* The hospital must identify at an early stage of hospitalization all patients who are likely to suffer adverse health consequences upon discharge if there is no adequate discharge planning.

(b) *Standard: Discharge planning evaluation.* (1) The hospital must provide a discharge planning evaluation to the patients identified in paragraph (a) of this section, and to other patients upon the patient's request, the request of a person acting on the patient's behalf, or the request of the physician.

(2) A registered nurse, social worker, or other appropriately qualified personnel must develop, or supervise the development of, the evaluation.

(3) The discharge planning evaluation must include an evaluation of the likelihood of a patient needing post-hospital services and of the availability of the services.

(4) The discharge planning evaluation must include an evaluation of the likelihood of a patient's capacity for self-care or of the possibility of the patient being cared for in the environment from which he or she entered the hospital.

(5) The hospital personnel must complete the evaluation on a timely basis so that appropriate arrangements for post-hospital care are made before discharge, and to avoid unnecessary delays in discharge.

(6) The hospital must include the discharge planning evaluation in the patient's medical record for use in establishing an appropriate discharge plan and must discuss the results of the evaluation with the patient or individual acting on his or her behalf.

(c) *Standard: Discharge plan.* (1) A registered nurse, social worker, or other appropriately qualified personnel must develop, or supervise the development of, a discharge plan if the discharge planning evaluation indicates a need for a discharge plan.

(2) In the absence of a finding by the hospital that a patient needs a discharge plan, the patient's physician may request a discharge plan. In such a case, the hospital must develop a discharge plan for the patient.

(3) The hospital must arrange for the initial implementation of the patient's discharge plan.

(4) The hospital must reassess the patient's discharge plan if there are factors that may affect continuing care needs or the appropriateness of the discharge plan.

(5) As needed, the patient and family members or interested persons must be counseled to prepare them for post-hospital care.

(6) The hospital must include in the discharge plan a list of HHAs or SNFs that are available to the patient, that are participating in the Medicare program, and that serve the geographic area (as defined by the HHA) in which the patient resides, or in the case of a SNF, in the geographic area requested by the patient. HHAs must request to be listed by the hospital as available.

(i) This list must only be presented to patients for whom home health care or post-hospital extended care services are indicated and appropriate as determined by the discharge planning evaluation.

(ii) For patients enrolled in managed care organizations, the hospital must indicate the availability of home health and posthospital extended care services through individuals and entities that have a contract with the managed care organizations.

(iii) The hospital must document in the patient's medical record that the list was presented to the patient or to the individual acting on the patient's behalf.

(7) The hospital, as part of the discharge planning process, must inform the patient or the patient's family of their freedom to choose among participating Medicare providers of posthospital care services and must, when possible, respect patient and family preferences when they are expressed. The hospital must not specify or otherwise limit the qualified providers that are available to the patient.

(8) The discharge plan must identify any HHA or SNF to which the patient is referred in which the hospital has a disclosable financial interest, as specified by the Secretary, and any HHA or SNF that has a disclosable financial interest in a hospital under Medicare. Financial interests that are disclosable under Medicare are determined in accordance with the provisions of Part 420, Subpart C, of this chapter.

(d) *Standard: Transfer or referral.* The hospital must transfer or refer patients, along with necessary medical information, to appropriate facilities, agencies, or outpatient services, as needed, for followup or ancillary care.


(e) *Standard: Reassessment.* The hospital must reassess its discharge planning process on an on-going basis. The reassessment must include a review of discharge plans to ensure that they are responsive to discharge needs.

[59 FR 64152, Dec. 13, 1994, as amended at 69 FR 49268, Aug. 11, 2004]

APPENDIX C  
MEDICATION DISCREPANCY TOOL

## Medication Discrepancy Tool (MDT)

MDT is designed to facilitate reconciliation of the medication regimen across settings and prescribers.

 **Medication Discrepancy Event Description:** Complete one form for each discrepancy

✓ **Causes and Contributing Factors—check all that apply**

*Italicized text suggests patient's perspective and/or intended meaning*

**Patient Level** \_\_\_\_\_

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Adverse drug reaction or side effects<br><input type="checkbox"/> 2. Intolerance<br><input type="checkbox"/> 3. Didn't fill prescription<br><input type="checkbox"/> 4. Didn't need prescription<br><input type="checkbox"/> 5. Money/financial barriers | <input type="checkbox"/> 6. Intentional nonadherence<br><i>"I was told to take this but I choose not to."</i><br><input type="checkbox"/> 7. Nonintentional nonadherence (ie, knowledge deficit)<br><i>"I don't understand how to take this medication."</i><br><input type="checkbox"/> 8. Performance deficit<br><i>"Maybe someone showed me, but I can't demonstrate to you that I can."</i> |
|--|---|

**System Level** \_\_\_\_\_

- |  |   |
|--|---|
| <input type="checkbox"/> 9. Prescribed with known allergies/intolerances<br><input type="checkbox"/> 10. Conflicting information from different informational sources<br><i>For example, discharge instructions indicate one thing and pill bottle says another.</i><br><input type="checkbox"/> 11. Confusion between brand and generic names<br><input type="checkbox"/> 12. Discharge instructions incomplete/inaccurate/illegible<br><i>Either the patient cannot make out the handwriting or the information is not written in lay terms.</i> | <input type="checkbox"/> 13. Duplication<br><i>Taking multiple drugs with the same action without any rationale.</i><br><input type="checkbox"/> 14. Incorrect dosage<br><input type="checkbox"/> 15. Incorrect quantity<br><input type="checkbox"/> 16. Incorrect label<br><input type="checkbox"/> 17. Cognitive impairment not recognized<br><input type="checkbox"/> 18. No caregiver/need for assistance not recognized<br><input type="checkbox"/> 19. Sight/dexterity limitations not recognized |
|--|---|

✓ **Resolution—check all that apply**

- Advised to stop taking/start taking/change the way in which medications are administered
- Discussed potential benefits and the harm that may result from nonadherence
- Encouraged patient to call PCP/specialist about problem
- Encouraged patient to schedule an appointment with PCP/specialist to discuss problem
- Encouraged patient to talk to pharmacist about problem
- Addressed performance/knowledge deficit
- Provided resource information to facilitate adherence
- Other \_\_\_\_\_

APPENDIX D

ACRONYMS

ACA	Affordable Care Act
ADE	Adverse drug event
AHCP	After hospital care plan
AMI	Acute myocardial infarction
CABG	Coronary artery bypass graft
CBO	Congressional Budget Office
CHF	Congestive heart failure
CMS	Centers for Medicare and Medicaid Services
COPD	Chronic obstructive pulmonary disease
DMP	Disease management program
DRA	Deficit Reduction Act
DRG	Diagnostic related grouping
ED	Emergency department
HAC	Hospital acquired condition
HCFA	Healthcare Financing Administration
HCQII	Health Care Quality Improvement Initiative
HHS	Health and Human Services
HRQL	Health related quality of life
IPPS	Inpatient prospective payment system
IQR	Hospital Inpatient Quality Reporting Program
LOS	Length of stay
MedPac	Medicare Payment Advisory Committee
P4P	Pay for performance



PCP	Primary care physician
PHR	Personal health record
PPAC	Patient Protection and Affordable Care Act
PPR	Potentially preventable readmission
PPS	Prospective payment system
PSRO	Professional standards review organization
PTCA	Percutaneous transluminal coronary angioplasty
RHQDAPU	Reporting Hospital Quality Data for Annual Payment Update
VBP	Value based purchasing

## REFERENCES

- Administration on Aging. (2001). *Census data & population Estimates*. Retrieved January 18, 2012, from AoA Administration on Aging: [www.aoa.gov/aoaroot/aging\\_statistics/Census\\_Population/Population/2001/facts/orfeatures2001.aspx](http://www.aoa.gov/aoaroot/aging_statistics/Census_Population/Population/2001/facts/orfeatures2001.aspx)
- American College of Physicians; Beacon Medical Services; Society of Hospital Medicine; University of Chicago Medical Center; University of Nebraska; University of Florida; American Board of Medical Specialties; Northwestern University, American College of Physicians, Society of General Internal Medicine, Society of Hospital Medicine, American Geriatrics Society, American College of Emergency Physicians, and Society for Academic Emergency Medicine. (2009). Transitions of care consensus policy statement. *Journal of Hospital Medicine*, 4, 364-370.
- American Geriatrics Society. (2009). *Physician reimbursement-Medicare update*. Retrieved January 12, 2010, from American Geriatrics Society: [www.americangeriatrics.org](http://www.americangeriatrics.org)
- Anderson, M. A., Hanson, K. S., & DeVilder, N. W. (1996). Hospital readmission during home care: A pilot study. *Journal of Community Health Nursing*, 13(1), 1-12.
- Arbaje, A., Wolff, J. L., Yu, Q., Powe, N. R., Anderson, G. F., & Boulton, C. (2008). Postdischarge environmental and socioeconomic factors and the likelihood of early hospital readmission among community-dwelling Medicare beneficiaries. *The Gerontologist*, 48(4), 495-504.
- Atchley, R. C., & Barusch, A. S. (2004). *Social forces & aging*. Belmont, CA: Wadsworth/Thomson Learning.
- Atienza, F., Anguita, M., Martinex-Alzamora, N., Osca, J., Ojeda, S., Almenar, L., et al. (2004). Multicenter randomized trial of a comprehensive hospital discharge and outpatient heart failure management program. *European Journal of Heart Failure*, 6, 643-652.
- Averill, R. F., McCullough, E. C., Hughes, J. S., Goldfield, N. I., Vetrees, J. C., & Fuller, R. L. (2009). Redesigning the Medicare inpatient PPS to reduce payments to hospitals with high readmission rates. *Health Care Financing Review*, 30(4), 1-15.
- Baicker, K., & Chandra, A. (2004, April). Medicare spending, the physician workforce, and beneficiaries' quality of care. *Health Affairs*, 184-196.
- Bauer, M., Fitzgerald, L., Haesler, E., & Manfrin, M. (2009). Hospital discharge planning for frail older people and their family: Are we delivering best practice? A review of the evidence. *Journal of Clinical Nursing*, 18, 2539-2546.

- Benbassat, J., & Taragin, M. (2000). Hospital readmissions as a measure of quality health care. *Archives of Internal Medicine*, 160, 1074-1081.
- Bevir, M. (1999). Foucault, power, and institutions. *Political Studies*, 47, 345-359.
- Centers for Medicare & Medicaid Services. (2011). *Quality improvement organizations*. Retrieved December 1, 2011, from CMS: [www.cms.gov/qualityimprovementorgs/](http://www.cms.gov/qualityimprovementorgs/)
- Centers for Medicare and Medicaid Services. (2011). *Medicare programs; Hospital inpatient value based purchasing program; proposed rule*. Federal Register, Department of Health and Human Resources. Washington DC: Federal Register.
- Centers for Medicare and Medicaid Services. (2010). *Roadmap for implementing value driven healthcare in the traditional medicare fee-for-service program*. USA: Department of Health and Human Services.
- Chu, L.-W., & Pei, C. K. (1999). Risk factors for early emergency hospital readmission in elderly medical patients. *Gerontology*, 45, 220-226.
- CMS. (2006). *Conditions for coverage (CfCs) hospitals & conditions of participation (CoPs)*. Retrieved November 21, 2011, from Centers for Medicare and Medicaid Services: [http://www.cms.gov/CfCsAndCoPs/06\\_Hospitals.asp#TopOfPage](http://www.cms.gov/CfCsAndCoPs/06_Hospitals.asp#TopOfPage)
- CMS Hospital Pay-for-Performance Workgroup. (2007). *U.S. Department of Health and Human Services Medicare hospital value-based purchasing plan development*. Centers for Medicare and Medicaid Services. CMS.
- CMS. (2010). *Roadmap for implementing value driven healthcare in the traditional medicare fee-for-service program*. Department of Health & Human Services.
- Coleman, E. A., & Berenson, R. (2004). Lost in transition: Challenges and opportunities for improving the quality of transitional care. *Annals of Internal Medicine*, 141(7), 533-536.
- Coleman, E. A., Parry, C., Chalmers, S., & Min, S.-j. (2006). The care transition intervention: Results of a randomized controlled trial. *Archives of Internal Medicine*, 166, 1822-1828.
- Colwill, J. M., Cultice, J. M., & Kruse, R. L. (2008). Will generalist physician supply meet demands of an increasing and aging population? *Health Affairs*, 27(3), 232-241.
- Congressional Budget Office. (2010). *CBO's August 2010 baseline: Medicare*.
- Cox, C. (1996). Discharge planning for dementia patients: Factors influencing caregiver decisions and satisfaction. *Health and Social Work*, 21, 97-104.

- Dobrzanska, L., & Newel, R. (2006). Readmissions: A primary care examination of reasons for readmission of older people and possible readmission risk factors. *Journal of Clinical Nursing*, 15, 599-606.
- Dutton, P. V. (2007). *Health care in France and the United States: Learning from each other*. Retrieved January 11, 2012, from The Brookings Institute: [www.brookings.edu/07France\\_Dutton/Dutton.pdf](http://www.brookings.edu/07France_Dutton/Dutton.pdf)
- Federal Interagency Forum on Aging Related Statistics. (2010). *Population*. Retrieved November 30, 2011, from AgingStats.gov: [www.agingstats.gov/agingstatsdotnet/Main\\_Site/Data/2020\\_Documents/docs/Population.pdf](http://www.agingstats.gov/agingstatsdotnet/Main_Site/Data/2020_Documents/docs/Population.pdf)
- Finkelstein, A. (2007). The aggregate effects of health insurance: Evidence from the introduction of Medicare. *Quarterly Journal of Economics*, 122(1).
- Fisher, E. S., & Wennberg, J. E. (2003). Health care quality, geographic variations, and the challenge of supply-sensitive care. *Perspectives in Biology and Medicine*, 46(1), 69-79.
- Forster, A. J., Murff, H. J., Peterson, J. F., Gandhi, T. K., & Bates, D. W. (2003). The incidence and severity of adverse events affecting patients after discharge from the hospital. *Annals of Internal Medicine*, 138(3), 161-173.
- Friedman, B., & Basu, J. (2004). The rate and cost of hospital readmissions for preventable conditions. *Medical Care Research Review*, 61(2), 225-240.
- Garasen, H., Windspoll, R., & Johnsen, R. (2007, May 2). *Intermediate care at a community hospital as an alternative to prolonged general hospital care for elderly patients: a randomised controlled trial*. Retrieved January 12, 2010, from BMC Public Health: [www.biomedcentral.com/1471-2458/7/68/prepub](http://www.biomedcentral.com/1471-2458/7/68/prepub)
- Hackbarth, G. M. (2009). *Reforming America's health care delivery system*. Medicare Payment Advisory Committee. Senate Finance Committee Roundtable.
- Hanna, E. L., Racz, M. J., & Walford, G. (2003). Predictors of readmission for complications of coronary artery bypass graft surgery. *Journal of the American Medical Association*, 290 (6), 773-780.
- Hasan, O., Meltzer, D. O., Shaykevich, S. A., Bell, C. M., Kaboli, P. J., Auerbach, A. D., et al. (2009). Hospital readmission in general medicine patients: A prediction model. *Journal of General Internal Medicine*, 25 (3), 211-219.
- He, W., Sengupta, M., Velkoff, V. A., & DeBarros, K. A. (2005). *65+ in the United States: 2005*. U. S. Census Bureau.
- Hickey, A., Barker, M., McGee, H., & O'Boyle, C. (2005). Measuring health-related quality of life in older patient populations. *Pharmacoeconomics*, 23(10), 971-993.

- Hines, S. (2010, June 4). *Reducing avoidable hospital readmissions*. Retrieved November 23, 2011, from Agency for Healthcare Research and Quality: [www.ahrq.gov/news/kt/red/readmissionslides](http://www.ahrq.gov/news/kt/red/readmissionslides)
- Hoffman Jr., E., Klees, B., & Curtis, C. (2004 йил January). *Brief summaries of Medicare and Medicaid*. Retrieved 2011 3-March from Centers for Medicare and Medicaid Services: [www.cms.gov/medicareprogramratestats/downloads/medicaremedicaidsummarie s2004.pdf](http://www.cms.gov/medicareprogramratestats/downloads/medicaremedicaidsummarie s2004.pdf)
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Committee on Quality of Health Care in America. Washington, D.C.: National Academy Press.
- Institute of Medicine. (2006). *Rewarding provider performance: Aligning incentives in Medicare*. Institute of Medicine. Washington, D.C.: National Academic Press.
- Jack, B. W., Chetty, V. K., Anthony, D., Greewald, J. L., Sanchez, G. M., Johnson, A. E., et al. (2009). A reengineered hospital discharge program to decrease rehospitalization. *Annals of Internal Medicine*, 150(3), 178-187.
- Jencks, S. F., Williams, M. V., & Coleman, E. A. (2009). Rehospitalizations among patients in the Medicare fee-for-service program. *New England Journal of Medicine*, 350(14), 1418-28.
- Kansagara, D., Englander, H., Salanitro, A., Kagen, D., Theobald, C., Freeman, M., et al. (2011). Risk prediction models for hospital readmission. *Journal of the American Medical Association*, 306(15), 1688-1698.
- Klees, B. S., Wolfe, C. J., & Curtis, C. A. (2010 1-November). *Brief summaries of Medicare & Medicaid*. Retrieved 2011 йил 3-March from Centers for Medicare and Medicaid Services: [www.cms.gov/medicareprogramratesstats/medicaresummarie s2010.pdf](http://www.cms.gov/medicareprogramratesstats/medicaresummarie s2010.pdf)
- Kosmala-Anderson, J., Wallace, L., & Turner, A. (2010). Confidence matters: A self-determination theory study of factors determining engagement in self-management support practices of UK clinicians. *Psychology, Health & Medicine*, 15(4), 478-491.
- Kripalani, S., Jackson, A. T., Schnipper, J. L., & Coleman, E. A. (2007). Promoting effective transitions of care at hospital discharge: A review of key issues for hospitals. *Journal of Hospital Medicine*, 2(5), 314-323.
- Laniece, I., Courturier, P. D., Gavazz, G., Lehman, S., Jolly, D., Voisin, T., et al. (2008). Incidence and main factors associated with early unplanned hospital readmission among French medical inpatients aged 75 and over admitted through emergency units. *Age and Ageing*, 37(4), 416-422.

- Lazarus, E. S. (1988). Theoretical considerations for the study of the doctor-patient relationship: Implication of perinatal study. *Medical Anthropology Quarterly*, 2(1), 34-58.
- Lopez-Aguila, S., Contel, J. C., Farre, J., Campuzano, J. L., & Rajmil, L. (2011). Predictive model for emergency hospital admission and 6-month readmission. *American Journal of Managed Care*, 17(9), e348-e357.
- Lyratzopoulos, G., Havely, D., Gemmell, I., & Cook, G. A. (2005). Factors influencing emergency medical readmission risk in UK district general hospital: A prospective study. *BMC Emergency Medicine*, 5(1), 1-9.
- Makaryus, A., & Friedman, E. (2005). Patients' understanding of their treatment plans and diagnosis at discharge. *Mayo Clinic Proceedings*, 80, 991-994.
- Maryland Hospital Association. (2009). *Quality indicator project executive briefing*. Retrieved March 3, 2011, from Quality Indicator Project: [www.data.qiproject.org](http://www.data.qiproject.org)
- McMillan, T., Allan, W., & Black, P. (2006). Accuracy of information on medicines in hospital discharge summaries. *Internal Medicine Journal*, 36, 221-225.
- Medpac. (2010). *Healthcare spending and the Medicare program*. Medicare Payment Advisory Commission.
- MedPac. (2007). *Report to the Congress: Promoting greater efficiency in Medicare*. Medicare Payment Advisory Commission.
- Milgate, K., & Hackbarth, G. (2005-2006). Quality in Medicare: From measurement to payment and provider to patient. *Health Care Financing Review*, 27(2).
- Miller, R., & K., W. (2011). Chapter 42: Readmissions. In R. K. Associates, *The 2011 healthcare business market research handbook* (pp. 193-196).
- Morrissey, E. r., McElnay, J. C., Scott, M., & McConnell, B. J. (2003). Influence of drugs, demographics and medical history on hospital readmission of elderly patients. *Clinical Drug Investigation*, 23(2), 119-128.
- Naylor, M. D., Feldman, P. H., Keating, S., Koren, M. J., Kurtzman, E. T., MacCoy, M. C., et al. (2009). Translating research into practice: Transitional care for older adults. *Journal of Evaluation in Clinical Practice*, 15, 1154-1179.
- Naylor, M., Brooten, D. A., Campbell, R. L., Maislin, G., McCauley, K. M., & Schwartz, J. S. (2004). Transitional care of older adults hospitalized with heart failure: A randomized controlled trial. *Journal of the American Geriatrics Society*, 52, 675-684.
- Obama, P. B. (2009). Remarks by the president at the annual conference of the American Medical Association. The White House. Office of the Press Secretary.

- Ornstein, K., Smith, K. L., Foer, D. H., Lopez-Cantor, M., & Soriano, T. (2011). To the hospital and back home again: A nurse practitioner-based care program for hospitalized homebound people. *Journal of the American Geriatrics Society*, 59, 544-551.
- Parker, S. (2005). *Do current discharge arrangements from inpatient hospital care for the elderly reduce readmission rates, the length of inpatient stay or mortality, or improve health status?* World Health Organization, Regional Office for Europe. Copenhagen: WHO.
- Parry, C., Coleman, E. A., Smith, J. D., Frank, J., & Kramer, A. M. (2003). The care transitions intervention: A patient-centered approach to ensuring effective transfers between sites of geriatric care. *Home Health Care Services Quarterly*, 22(3), 1-17.
- QualityNet. (2011, July). *Readmission measures overview*. Retrieved September 2, 2011, from QualityNet: [www.qualitynet.org](http://www.qualitynet.org)
- Roy, C., Poon, E., Karson, A., Ladak-Merchant, Z., Johnson, R., & Maviglia, S. (2005). Patient safety concerns arising from test results that return after hospital discharge. *Annals of Internal Medicine*, 143(2), 121-128.
- Shostak, S. (2007). All those elderly people-where do they all come from ? *Critical Quarterly*, 49(3), 60-83.
- Soeken, K. L., Prescott, P. A., & Herron, D. G. (1991). Predictors of hospital readmission: A meta analysis. *Evaluation & the Health Professions*, 14(3), 262-281.
- Starfield, B., & Shi, L. (2002). Policy relevant determinants of health: An international perspective. *Health Policy*, 60, 201-218.
- Stone, J., & Hoffman, G. (2010). *Medicare hospital readmissions: Issues, Policy Options and PPACA*. Congressional Research Service. Washington, D.C.: CRS.
- Strunin, L., Stone, M., & Jack, B. (2007). Understanding rehospitalization risk: Can hospital discharge be modified to reduce recurrent hospitalization? *Journal of Hospital Medicine*, 2(5), 297-304.
- Tanenbaum, S. J. (2009). Pay for performance in Medicare: Evidentiary irony and the politics of value. *Journal of Health Politics, Policy and Law*, 34(5).
- Transgenerational. (2011). *The demographics of aging*. Retrieved November 17, 2011, from Transgenerational Design Matters: <http://transgenerational.org/aging/demographics.htm>
- U.S. Census Bureau. (2002). *Demographic trends in the 20th century*. Census 2000 Special Reports.

- U.S. Census Bureau. (2008). *National population projections*. Retrieved November 21, 2011, from U.S. Census Bureau:  
[www.census.gov/population/www/projections/summarytables.html](http://www.census.gov/population/www/projections/summarytables.html)
- U.S. Department of Health & Human Services. (n.d.). *Hospital compare*. Retrieved December 1, 2011, from U.S. Department of Health & Human Services:  
[www.hospitalcompare.hhs.gov/staticpages/for-consumers/value-basedpurchasing.aspx](http://www.hospitalcompare.hhs.gov/staticpages/for-consumers/value-basedpurchasing.aspx)
- van Walraven, C., Seth, R., & Laupacis, A. (2002). Dissemination of discharge summaries. *Canadian Family Physician, 48*, 737-742.
- Walz, S. E., Smith, M., Cox, E., Sattin, J., & Kind, A. J. (2010). Pending laboratory tests and the hospital discharge summary in patients discharged to sub-acute care. *Journal of Internal Medicine, 26*(4), 393-398.
- Weaver, C., Schiech, L., Held-Warmkessel, J., Kedziera, P., Haney, E., Babb, J. S., et al. (2006). Risk for unplanned hospital readmission of patients with cancer: Results of a retrospective medical record review. *Oncology Nursing Forum, 33*(3), 44-52.
- Weaver, F., Perloff, L., & Waters, T. (1998). Patients' and caregivers' transition from hospital to home: Needs and recommendations. *Home Health Services Quarterly, 17*(3), 27-48.
- Westert, G. P., Lagoe, R. J., Keskimaki, I., Leyland, A., & Murphy, M. (2002). An international study of hospital readmissions and related utilization in Europe and the USA. *Health Policy, 61*, 269-278.
- World Health Organization. (2000). *WHO world health report*. World Health Organization.
- World Health Organization. (2011). *World health statistics 2011: France*. World Health Organization.
- Zola, I. K. (1985). Structural constraints in the doctor-patient relationship: The case of non-compliance. In L. Eisenberg, & A. Kleinman (Eds.), *The relevance of social science for medicine* (pp. 241-252). Dordrecht, Holland: Reidel.
- Zook, C., & Moore, F. (1980). High cost users of medical care. *New England Journal of Medicine, 302*, 996-1002.