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THE INFLUENCE OF MEDICARE INSURANCE TYPE –
TRADITIONAL FEE-FOR-SERVICE V. MEDICARE ADVANTAGE –
ON REHOSPITALIZATIONS FOR PATIENTS WITH HEART FAILURE
IN SKILLED NURSING FACILITIES

A Dissertation Presented

by

ANDREA ELIZABETH LANE DADDATO

Submitted to the Office of Graduate Studies,

University of Massachusetts Boston,

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2020

Gerontology Program

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ABSTRACT

THE INFLUENCE OF MEDICARE INSURANCE TYPE – TRADITIONAL FEE-FOR-SERVICE V. MEDICARE ADVANTAGE – ON REHOSPITALIZATIONS FOR PATIENTS WITH HEART FAILURE IN SKILLED NURSING FACILITIES

May 2020

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Heart failure (HF) is a leading cause of rehospitalizations for Medicare beneficiaries from skilled nursing facilities (SNFs). This research sought to determine if HF patients' insurance type (Medicare Fee-for-Service (FFS) vs. Medicare Advantage (MA)) influences their risk for readmission within 30 days of hospital discharge to a SNF. This research is particularly timely in light of new penalties under the Protecting Access to Medicare Act SNF Value-Based Purchasing (SNF-VBP) program directed at SNFs for 30-day

rehospitalizations. Previous literature finds FFS beneficiaries with HF in SNF at greater risk for rehospitalization compared to MA members. This research contributes to the literature by using a mixed methods approach. The quantitative portion of this research relied on several modeling approaches to determine if insurance type has an effect on risk for rehospitalization. The qualitative portion of this research used semi-structured interviews to describe the relationship between MA plans and SNFs from the perspective of key decision-makers in SNFs. Research questions were guided by a conceptual framework derived from Resource Dependence Theory and Principal-Agent Theory.

In the quantitative results, insurance type was not a significant predictor of risk for rehospitalization. However, all of the analyses pointed to MA beneficiaries having slightly less risk for rehospitalization compared to FFS beneficiaries. Patients with a shorter length of SNF stay and two or more hospitalizations in the previous 12 months were at a greater risk for rehospitalization. SNFs with fewer contracted MA plans, lower health inspection rating and higher quality of resident care star rating were associated with a greater risk for 30-day rehospitalizations. Interviewees described case management and length of SNF stay as key mechanisms of control used by MA plans to influence the care of their members. The qualitative results also indicated that SNFs prefer to provide care for FFS beneficiaries over MA members due to the higher reimbursement rate and perception of more autonomy in the decision-making process compared to feelings of constraint under MA plans. This research contributes to our understanding of how insurance type may influence the risk for rehospitalization by providing a mixed methodological perspective and directs future policies and research.

ACKNOWLEDGMENTS

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LIST OF ABBREVIATIONS

AACVPR:	American Association of Cardiovascular and Pulmonary Rehabilitation
AAPCC:	Adjusted average per capita cost
ACA:	Patient Accountability and Affordable Care Act
ACO:	Accountable care organization
ADL:	Activities of daily living
AHIP:	America's Health Information Plans
AMA:	American Medical Association
BBA:	Balanced Budget Act
BIMS:	Brief Interview for Mental Status
BPCI:	Bundled Payments for Care Improvement
CABG:	Coronary artery bypass graft
CAHPS:	Consumer Assessment of Healthcare Provider and Systems
CAM:	Confusion Assessment Method
CASPER:	Certification and Survey Provider Enhanced Reporting
CCI:	Charlson Comorbidity Index
CCTP:	Community-based Care Transitions Program
CEC:	Clinical Endpoints Committee
CHF:	Congestive heart failure
CJR:	Complete joint replacement
CMS:	Centers for Medicare and Medicaid Services
CMS-HCC:	Centers for Medicare and Medicaid Services Hierarchical Condition Categories
CNA:	Certified nursing assistant

COMIRB: Colorado Multiple Institutional Review Board

CON: Certificate of Need

COPD: Chronic obstructive pulmonary disease

CORHIO: Colorado Regional Health Information Organization

DNR: Do not resuscitate

DON: Director of nursing

DRG: Diagnosis related group

EMR: Electronic medical record

ER: Emergency room

ESRD: End-stage renal disease

FFS: Fee-for-service

GEE: Generalized estimating equations

HEDIS: Healthcare Effectiveness Data and Information Set

HF-DMP: Heart failure disease management program

HFpEF: Heart failure with preserved ejection fraction

HFrfEF: Heart failure with reduced ejection fraction

HIE: Health information exchange

HIIN: Health Improvement Innovation Network

HIPAA: Health Insurance Portability and Accountability Act

HMO: Health maintenance organizations

HRRP: Hospital Readmissions Reduction Program

ICD: International classification of diseases

IMPACT: Improving Medicare Post-acute Care Transformation

IPA: Individual practice association

IPWRA: Inverse-probability-weighted regression adjustment

IRB: Institutional review board

IRF: Inpatient rehabilitation facility

KCCQ: Kansas City Cardiomyopathy Questionnaire

LPN: Licensed practical nurses

LTAC: Long-term acute care

LTC: Long-term care

LTCH: Long-term care hospital

MA: Medicare Advantage

MCBS: Medicare Current Beneficiary Survey

MDS: Minimum data set

MEDPAC: Medicare Payment Advisory Commission

MICE: Multiple imputation by chained equations

MMA: Medicare Prescription Drug, Improvement, and Modernization Act

MOOP: Maximum out-of-pocket

NDI: National Death Index

NHC: Nursing Home Compare

NHLBI: National Heart Lung and Blood Institute

NIH: National Institutes of Health

PACE: Program for All Inclusive Care of the Elderly

PAMA: Protecting Access to Medicare Act

PDPM: Patient-Driven Payment Model

PFFS: Private fee-for-service

PfP: Partnership for Providers

PJB: Payroll-Based Journal

POLST: Physician Orders for Life-sustaining Treatment

POS: Point of service

PPO: Preferred provider organizations

PPS: Prospective payment system

PSM: Propensity score matching

PT: Physical therapist

QAPI: Quality Assurance and Performance Improvement

RDT: Resource Dependence Theory

RN: Registered nurse

RUG: Resource utilization group

SCHFI: Self Care of Heart Failure Index

SHMOs: Social/Health maintenance organizations

SNF: Skilled nursing facility

SNF-QRP: Skilled Nursing Facility – Quality Reporting Program

SNF-VBP: Skilled Nursing Facility – Value-based Purchasing program

SNP: Special needs plan

SPSS: Statistical Package for the Social Sciences

TEFRA: Tax Equity and Fiscal Responsibility Act

TQM: Total quality management

UMB: University of Massachusetts Boston

CHAPTER 1

INTRODUCTION

Rehospitalizations, defined as readmissions to acute care hospitals within 30 days post-discharge, have become one of the most widely used markers of poor care and health outcomes (e.g. decreased mobility and physical functioning, confusion and even death) (Administration on Aging (AoA), 2012; Agotnes, Jacobsen, Harrington, Petersen, 2016; America's Health Insurance Plans (AHIP), 2010a), and of public policy focus for improving health care quality (Kocher & Adashi, 2011; Mor, Intrator, Feng & Grabowski, 2010; Yoo et al., 2015). Data from the Medicare Payment Advisory Commission (MedPAC) (2019) revealed that nearly 16% of Medicare beneficiaries hospitalized in a given year were rehospitalized within 30 days of discharge. Rehospitalizations are extremely costly and inefficient (Mor et al., 2010). The total cost of rehospitalizations of Medicare beneficiaries in 2008 was \$15 billion, of which \$12 billion was for potentially avoidable rehospitalizations (MedPAC, 2008).

Heart failure has been identified by the Centers for Medicare and Medicaid Services (CMS) as one of the leading causes of potentially avoidable rehospitalizations of Medicare patients (Allen et al., 2011; Azad & Lemay, 2014; Desai & Stevenson, 2012; Jencks, Williams, & Coleman, 2009). In particular, patients with heart failure accounted for over

19% of potentially preventable rehospitalizations in 2008 at a cost of \$903 million to the Medicare program (MedPAC, 2008). Heart failure is a chronic illness that, if left untreated and unmanaged, can lead to exacerbation (including increased shortness of breath, fatigue and edema) potentially requiring a rehospitalization. However, with proper care and management, including educating patients how to recognize and treat their symptoms, heart failure rehospitalizations can be avoided (Kim and Han, 2013).

The number of potentially avoidable rehospitalizations of patients with heart failure is only expected to increase with the aging of the U.S. population. Individuals become more susceptible to heart failure as they age, with nearly 10 out of every 1,000 individuals aged 65 years or older having the diagnosis (Mozaffarian et al., 2015). By 2030, it is predicted that over 8 million people (1 in every 33) will have a diagnosis of heart failure, which is substantially higher than the current 5.7 million individuals with this diagnosis (Heidenreich et al., 2013). With increased prevalence, researchers predict a substantial increase in the cost of caring for patients with heart failure. Heidenreich and colleagues (2013) estimate that medical costs associated with heart failure will more than double, from \$21 billion to \$53 billion, between 2012 and 2030.

Health policy has focused on ways to hold care providers accountable for avoidable rehospitalizations. Under the Patient Protection and Affordable Care Act (ACA) of 2010 (P.L. 111-148), the Hospital Readmissions Reduction Program (HRRP) (Section 3025) (implemented in 2012) monetarily penalizes hospitals for potentially avoidable rehospitalizations as a way to reduce costs and improve care. Consistent with this goal, the HRRP has been shown to reduce preventable 30-day hospital readmissions for patients with

heart failure and other conditions since its implementation with an annual savings to Medicare of nearly \$2 billion (Lu, Huang, & Johnson, 2016; MedPAC, 2015a; MedPAC, 2018a).

Following discharge from a hospital, some patients require additional post-acute care provided by skilled nursing facilities (SNFs), inpatient rehabilitation facilities or long-term care hospitals. Older and frailer patients with multiple comorbidities are most often in need of post-acute care in such settings (Allen et al., 2011; Dolansky et al., 2010). With the recent success of HRRP, public policy efforts to reduce potentially avoidable rehospitalizations have shifted to post-acute care providers.

This study focuses on patients with heart failure who are discharged from a hospital to a SNF. SNFs provide skilled rehabilitation such as nursing, physical, occupational and speech therapy as well as social services. Nearly one quarter of patients with heart failure admitted to a hospital are discharged to a SNF instead of sent home (Allen et al., 2011). In fact, heart failure is one of the leading causes of post-acute discharges to SNFs, representing around 4% of all SNF admissions (Allen et al., 2011; American Health Care Association (AHCA), 2011; MedPAC, 2010; White, 2003). Moreover, patients with heart failure have high rates of rehospitalization: anywhere between 18% to 43% of patients with heart failure in SNFs are rehospitalized within 30 days of discharge from the hospital (Allen et al., 2011; Boxer et al., 2012; Chen et al., 2012; Donelan-McCall, Eilersten, Fish, & Kramer, 2006; Jurgens et al., 2015b; MedPAC, 2018b; Ouslander, Diaz, Hain, & Tappen, 2011; Weerahandi et al., 2019). Heart failure was the third most costly rehospitalization primary diagnosis (septicemia - first and pneumonia - second) of SNF patients in FY 2011 (Office of Inspector

General (OIG), 2013). Rehospitalizations of patients with heart failure from SNFs accounted for \$643 million of Medicare spending in FY 2011 (4.5% of all Medicare costs associated with SNF patient rehospitalizations) (OIG, 2013). Recognizing the high rates and costs associated with potentially avoidable rehospitalizations of heart failure and other patients, SNFs are now held accountable for avoidable rehospitalizations under the Protecting Access to Medicare Act (PAMA) of 2014 (P.L. 113-93) as a way to reduce costs and to improve care.

Evidence suggests that there are steps SNFs can take to lower their rates of rehospitalization and to avoid the newly imposed penalties under PAMA. Risk factors for rehospitalization among patients with heart failure include poor care coordination between the hospital and SNF, SNF characteristics (such as ownership, chain affiliation, size and admission volume), staffing and quality of care (AoA, 2012; America's Health Insurance Plans (AHIP), 2010a; Clark et al., 2017; Graham, Prvu Bettger, Middleton, Spratt, Sharma, & Ottenbacher, 2017; Hutt, Frederickson, Ecord, & Kramer, 2003; Intrator, Castle, & Mor, 1999; Konetzka, Stuart, & Werner, 2018; Lichman et al., 2010; Neuman, Wirtalla & Werner, 2014; Pandolfi et al., 2017; Ogunneye et al., 2015; Rahman, Norton, & Grabowski, 2016; Toles et al., 2014; Unroe, Greiner, Colon-Emeric, Peterson, & Curtis, 2012; Zimmerman, Gruber-Baldini, Hebel, Sloane & Magaziner, 2002). Although many studies have addressed facility-and patient-level influences on rehospitalizations from SNFs, few have focused on the impact of insurance type on the risk of SNF rehospitalizations. Of note, in a recently published article by Huckfeldt and colleagues (2017), the authors compared outcomes (including rehospitalizations and community discharge) for patients admitted to a SNF or

inpatient rehabilitation facility for stroke, heart failure or lower extremity joint replacement by their insurance type – Fee-for-Service (FFS) v. Medicare Advantage (MA). Using data from the Medicare Provider Analysis and Review File and the Master Beneficiary Summary File examining hospital discharges between January 2011 and June 2013, Huckfeldt et al. (2017) found that patients with heart failure admitted to SNFs with FFS were at a greater risk for being rehospitalized compared to their MA counterparts. With the recent results of Huckfeldt and colleagues (2017) in mind, this paper seeks to further contribute to the literature surrounding risk factors of rehospitalizations from SNFs by investigating the impact of insurance type on differential rehospitalization rates across SNFs. Specifically, it will compare rehospitalizations among SNF patients with heart failure in the Denver metropolitan area who carry FFS Medicare coverage versus those who carry MA coverage. Unlike previous literature, this research will also contribute to the literature surrounding rehospitalizations from SNFs by using a mixed methods approach.

Rehospitalization rates are expected to vary due to the different incentives the two types of insurance coverage create for SNFs. The main distinction between the two Medicare coverages is the way in which they reimburse providers. Traditional FFS Medicare uses a Prospective Payment System (PPS) in which SNFs are reimbursed using a flat, case-mix adjusted, per diem rate (Draper et al., 2006; Liu & Manton, 1988). MA plans are reimbursed by Medicare on a capitated basis, which incentivizes them to keep costs down so that their costs do not, on average, exceed the capitated payments (Center for Medicare Advocacy, n.d.; Goodson et al., 2001; Huckfeldt et al., 2017; Meyers, Mor, & Rahman, 2018). Similar to FFS, MA plans reimburse SNFs using a per diem rate. However, unlike FFS, MA plans use

mechanisms (e.g. restrictive networks, utilization review, case management, controlling referrals, cost-sharing contracts and prior approval policies) and financial incentives (e.g. bonuses, withholding funds and sub-capitation arrangements) to influence providers and SNF behaviors to keep costs down (Altman, Cutler & Zeckhauser, 2003; Bundorf et al., 2004; Cutler, McClellan, & Newhouse, 2000; Gaynor, Rebitzer, & Taylor, 2001; Gadbois et al., 2018; Gold, 1999; Ma & McGuire, 2002; Ma & Riordan, 2002; Polsky & Nicholson, 2004; Wickizer & Lessler, 2002; Zigmond, 2013).

Another distinction between FFS and MA plans is that MA plans are privately managed care insurance plans (e.g. Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), Private Fee-for-service Plans (PFFSs) and Point of Service (POS) Plans) that typically have restricted networks of providers from which patients must receive care. MA plans have demonstrated to provide better care coordination and fewer rehospitalizations than FFS Medicare (AHIP, 2009a; AHIP 2009b; AHIP, 2009c; AHIP, 2010b; AHIP, 2010c; Anderson, 2009; Basu & Mobley, 2007; Cohen, Lemieux, Schoenborn, & Mulligan, 2012; Huckfeldt et al., 2017; Kumar, Rahman, Trivedi, Resnik, Gozalo, & Mor, 2018; Lemieux, Sennett, Wang, Mulligan, & Bumbaugh, 2012; Li, Cen, Cai, Wang, Pinto Thirukumaran, & Glance, 2018; Zeng et al., 2006). However, there are ongoing concerns about whether MA plans enroll a healthier population than those enrolled in FFS and whether or not MA plans sacrifice quality of care for cost-containment (Hellinger & Wong, 2000; Landon et al., 2012a; Miller, Weissert, & Chernew, 1998; Morgan, Virnig, DeVito, & Persily, 1997; Newhouse, Buntin & Chapman, 1997; Rahman, Keohane, Trivedi, & Mor, 2015).

Using a conceptual framework derived from Resource Dependence Theory (Pfeffer & Salancik, 1978) and Principal-Agent Theory (Jensen & Meckling, 1976; Mitnick, 2006; Ross, 1973), this dissertation uses mixed methods to answer the following four primary research questions:

1. *Do the personal characteristics of SNF patients with heart failure with MA coverage differ from SNF patients with heart failure enrolled in FFS Medicare?*
2. *Do SNF patients with heart failure with MA coverage have lower rates of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare?*
3. *Do SNF patients with heart failure with MA coverage have a lower likelihood of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare, after adjusting for and matching individual-level and facility-level factors?*
4. *How does the type of Medicare coverage – FFS v. MA – of patients with heart failure in SNF influence their skilled nursing care and in particular, their risk of rehospitalization?*

This research is important because it looks beyond commonly investigated factors (such as poor care coordination between the hospital and SNF, SNF characteristics, staffing and quality of care) to examine the role that insurance (FFS v. MA) plays in the rehospitalization of patients with heart failure in SNFs. This research is also particularly timely in light of CMS' newly implemented penalties for SNFs for rehospitalizations under PAMA (Carnahan, Unroe, & Torke, 2016; DHHS, 2015; Federal Register, 2015; Kimmey & Verdier, 2015; MedPAC, 2015c; Smith et al., 2015).

Quantitative data used for this research comes from the SNF Connect study – a randomized controlled trial of heart failure disease management in SNFs -- conducted by the University of Colorado - School of Medicine (Boxer et al., 2013). Data for the SNF Connect study was collected from 45 Colorado SNFs in the Denver metropolitan area beginning in 2014. In total, 340 usual care patients with heart failure were recruited while in a SNF and followed for a total of 60 days to observe their care while in SNFs and their post-SNF discharge disposition (this excludes two individuals who withdrew). Inclusion criteria for study participants were that they must be a) receiving skilled nursing care in a SNF following a qualifying hospitalization (at least three inpatient days for FFS patients) and b) have a diagnosis or a history of heart failure (Grebla et al., 2015). Exclusion criteria were that a patient came from a long-term care facility prior to being hospitalized and/or had a life-threatening illness that predicted mortality within 6 months or less, including metastatic cancer, inoperable severe primary valve disease or end-stage renal disease with dialysis. After removing individuals who died within 30 days post-hospital discharge to a SNF without going to the hospital, the total sample for this research was 333.

To supplement the quantitative analysis, qualitative interviews with key staff at 11 local SNFs were conducted to inform the research about whether and how the type of Medicare coverage—FFS v. MA—influences rehospitalizations 30 days post-hospital discharge (for a total of 23 interviews). The qualitative aspect of this research is important because prior research has used only quantitative data to explain factors affecting rehospitalizations from SNFs (Agotnes, et al., 2016). In their review of the literature, Agotnes and colleagues (2016) point to a need for other types of research, including

qualitative research, to explain rehospitalizations from SNFs. This research thus seeks to fill that gap by providing a unique perspective from key stakeholders within SNFs to understand how insurance type influences rehospitalizations from SNFs. Based on the findings, there may be policy and practice implications that can help prevent potentially avoidable rehospitalizations of SNF patients in the future.

Dissertation Structure

This dissertation comprises seven main chapters in addition to the Introduction. Chapter 2, the Literature Review, provides a succinct description of the literature surrounding rehospitalizations, the SNF environment, heart failure, Medicare and policies aimed at reducing rehospitalizations. Chapter 3, the Conceptual Framework, draws on Resource Dependence Theory and Principal-Agent Theory to explain rehospitalizations of patients with heart failure from SNFs and to develop and justify study hypotheses. Chapter 4, the Methods section, describes the mixed methodology approach proposed, beginning with the quantitative portion of the study followed by a description of the qualitative methods. Chapter 5, the Quantitative Results section provides an overview of the results of statistical analysis using SNF Connect data to determine if type of insurance – MA vs. FFS – has an effect on risk for rehospitalization 30 days post hospital discharge to a SNF. Chapter 6, the Qualitative Results, provides an overview of key themes that emerged during the 23 interviews from 11 SNFs in the Denver metropolitan area. Chapter 7 provides a discussion of the results of the mixed methodologies as they relate to the key research questions. The final chapter, Chapter 8, is the conclusion and summary for this dissertation.

CHAPTER 2

LITERATURE REVIEW

This section describes how the type of Medicare insurance might be expected to influence SNF rehospitalizations of patients with heart failure. The literature review begins by reviewing why rehospitalizations, both in general and in SNFs, have become a recent policy focus. It will then discuss why patients with heart failure have been recognized as a population at high risk for potentially avoidable rehospitalizations - especially from SNFs. Next, it provides background on the Medicare program, and the evolution of the FFS and MA programs within it. Through the description of MA, managed care will be defined and the reasons why policy makers have supported its expansion in the Medicare program discussed. Beyond the expansion of Medicare managed care, the literature review will also briefly describe other care coordination demonstrations and bundled payment initiatives that also aim, in part, to reduce rehospitalizations, identifying some of the key mechanisms common to the different systems. In addition, the literature review will define the SNF benefit under Medicare and describe how SNFs are reimbursed by FFS and MA plans. Of importance, the literature review will address how managed care and other mechanisms, all of which aim to reduce rehospitalizations and influence SNF behavior, may lead to differential health outcomes. Finally, the literature review will discuss what factors affect rehospitalizations from SNFs and public policy efforts that address reducing rehospitalizations in SNFs, specifically.

Rehospitalizations

Why are rehospitalizations a policy focus?

Rehospitalizations are one of the most widely used markers of quality of care (Kocher et al., 2011; Mor et al., 2010; Yoo et al., 2015). A rehospitalization is defined as a readmission to an acute care hospital within 30 days post-discharge from a hospital (James, Hall & Joynt, 2013). Rehospitalizations have become an increasing policy focus because they are extremely costly, inefficient and result in adverse health outcomes and consequences for patients (e.g. health complications, functional, emotional and psychological decline, delirium, polypharmacy, falls, hospital acquired medical problems/infections and increased risk of mortality) (Agotnes et al., 2016; AHCA, n.d.a.; Cafarella Lallemand et al., 2012; Hakkarainen, Arbabi, Willis, Davidson, & Flum, 2016; Ouslander, Schmidt, Lynn, Engelhardt, 2012). In 2017, MedPAC's report to Congress revealed that nearly 16% of Medicare patients who were hospitalized in an acute care hospital were rehospitalized within 30 days of discharge, costing Medicare \$15 billion; moreover, \$12 billion dollars (67%) of this spending was for potentially avoidable rehospitalizations (MedPAC, 2008; MedPAC, 2019). Potentially avoidable rehospitalizations are particularly important because they are an unnecessary cost to the health care system and can contribute to poor health experiences and outcomes for patients.

Why are patients with heart failure an important patient population?

Heart failure is a complex disease that affects nearly 6 million people in the U.S. (National Heart, Lung, and Blood Institute, 2015). It has been identified as one of the leading causes of rehospitalizations for patients aged 65 years or older and costs the U.S. health care

system nearly \$40 billion annually (Azad et al., 2014; Bui, Horwich, & Fonarow, 2011; Desai et al., 2012; Ouslander et al., 2011). While heart failure is a very common primary or secondary diagnosis, its prevalence is greater among certain groups, including individuals who are older, African American, overweight, have long-standing hypertension, and/or have previously had a myocardial infarction (heart attack) (Bui et al., 2011; Jurgens et al., 2015a; National Heart, Lung, and Blood Institute, 2015). In addition, patients with heart failure typically have multiple comorbidities that affect their overall health (Hines, Yu, & Randall, 2010). In general, heart failure is a complicated disease that ranges in complexity and severity. Though symptoms can be managed, there is no cure for heart failure.

The type of heart failure that is most strongly associated with rehospitalization risk is heart failure with preserved ejection fraction (HFpEF), which is distinguished from heart failure with reduced ejection fraction (HFrEF) (Nanayakkara, Patel, & Kaye, 2018; Owan et al., 2006). The two types of heart failure – HFpEF and HFrEF – are determined based on a person having heart failure symptoms and on the ejection fraction, which measures how much blood pumps out of the heart with each contraction (American Heart Association (AHA), 2017). The type of heart failure is diagnosed via an echocardiogram. Individuals with HFpEF (with an ejection fraction above 40%) have normal heart muscle contractions, but their ventricles do not relax with each ventricular filling, which prevents the oxygen rich blood from pumping to the body (AHA, 2017). Individuals with HFrEF (with an ejection fraction of 40% or less) have less blood pumped out into the their body because their heart muscle does not contract as it should (AHA, 2017).

HFpEF is the most common type of heart failure; an estimated 54% of individuals with heart failure have it (measured by the researchers as an ejection fraction of 50% or greater) (Owan et al., 2006). The aging of the population is one of the main reasons for the increase in patients with HFpEF (Nanayakkara et al., 2018). The higher prevalence of HFpEF is of note because in the general population, patients with HFpEF are at a greater risk of rehospitalization compared to individuals with HFrEF as there are fewer therapies that prove effective in treating HFpEF (Nanayakkara et al., 2018; Owan et al., 2006). In addition, the number of HFpEF rehospitalizations have been on the rise (Owan et al., 2006). In their analysis of patients with heart failure, Owan and colleagues (2006) found that over a 15-year period (from 1987 to 2001), the proportion of rehospitalizations of patients with HFpEF increased from 38% to 54%.

Although heart failure affects only 11% of Medicare beneficiaries, it accounted for 34% of Medicare spending in 2013 (Heidenreich et al., 2013). These high costs are expected to rise as the population ages and death rates fall among heart failure patients (Heidenreich et al., 2013). Heart failure is a potentially avoidable readmission diagnosis because, if provided the correct care, decompensation (e.g. shortness of breath, fatigue and edema) can be avoided. Thus, care coordination at the time of discharge, follow-up visits, self-care management and education have the potential to prevent rehospitalizations of patients with heart failure (Kim et al., 2013). Strategies such as these are particularly prominent in managed care, as reported below.

Why is the SNF environment important?

Not every heart failure patient who discharges from a hospital is able to transition directly home; many require post-acute care. Following a qualifying hospitalization (at least 3 days in length for FFS beneficiaries), Medicare beneficiaries who require additional care can receive services in a variety of settings, including home health agencies, SNFs, inpatient rehabilitation facilities, and long-term care hospitals (MedPAC, 2015b). The type of service chosen is typically based upon the specific health needs of the patient. Of importance to this paper, SNFs act as intermediaries between hospital and home for individuals who are in need of intensive rehabilitation with 24-hour care. SNFs provide nursing care, physical, occupational and speech therapy, as well as social services. Qualitative research by Burke and colleagues (2017) found that hospital-based clinicians feel pressure to discharge patients quickly to another setting to open up beds for new patients. SNFs are thus used as a “safety net” for patients who are unable to discharge home (Burke et al., 2017). As of 2014, there were over 15,000 SNFs in the United States, with 70% being for-profit, 24% non-profit and 6% government-run (Harris-Kojetin et al., 2016; MedPAC, 2015b).

Nearly one-quarter of Medicare beneficiaries discharged from an acute-care hospital are admitted to a SNF for rehabilitative services, with an average length of SNF stay of 27 days (MedPAC, 2013; Mor et al., 2010). Of rehospitalizations from SNFs, many are potentially avoidable (Jacobsen et al., 2017; Ouslander et al., 2016; Saliba et al., 2000; Vasilevskis et al., 2017). Saliba et al. (2000) found that many transfers to hospitals from SNFs were inappropriate, including 36% of emergency room transfers and 40% of hospital

readmissions. Rehospitalizations during a SNF stay were 12% in 2011 and 11% in 2013 (MedPAC, 2015c).

There is disagreement between hospital and SNF staff about what constitutes a potentially avoidable rehospitalization. Using structured medical chart review of 120 readmissions from 23 SNFs to one hospital, hospital and SNF staff determined that 30% versus 13% of rehospitalizations were potentially avoidable, respectively (Vasilevskis et al., 2016). This demonstrates the contrasting perspectives of what constitutes a readmission to the hospital versus a SNF. Patients may hold yet different views on what constitutes potentially avoidable readmissions. Qualitative interviews of Medicare beneficiaries rehospitalized from SNFs revealed that 34% of respondents felt their rehospitalizations were potentially avoidable (Jacobsen et al., 2017).

Hospitalizations for heart failure often require post-acute care in SNFs (MedPAC, 2013). In 2003, nearly 1.2 million (1,188,711) Medicare patients were diagnosed with heart failure during hospitalization (Dolansky et al., 2010) and nearly 25% of them required subsequent care in a SNF (Dolansky et al., 2010). In fact, heart failure is one of the most prevalent causes of SNF admissions, representing around 4% of all patients discharged to SNFs (Allen et al., 2011; American Health Care Association, 2011; MedPAC, 2010; White, 2003). These patients are typically older, female, have many complex comorbidities, have low blood pressure and are more likely to have a preserved ejection fraction than patients with heart failure who go directly home (Allen et al., 2011; American Heart Association, 2016; Dolansky et al., 2012).

This vulnerable population is at a high risk for rehospitalization; indeed, anywhere between 18% to 43% of patients with heart failure were rehospitalized within 30 days of hospital discharge (Allen et al., 2011; Boxer et al., 2012; Chen et al., 2012; Donelan-McCall et al., 2006; Jurgens et al., 2015b; Ouslander et al., 2011; Weerahandi et al., 2019). Of hospital discharge diagnoses (including pneumonia, hip fracture, acute cerebrovascular accident and osteoarthritis), heart failure is the only disease-specific risk factor that was a statistically significant predictor of risk for rehospitalization from SNF (Burke et al., 2016). Walsh and colleagues (2010) found that 16.8% of rehospitalizations of dually-eligible patients with heart failure (i.e., those with both Medicare and Medicaid coverage) from skilled rehabilitation in SNFs were potentially avoidable.

Potentially avoidable rehospitalizations of patients with heart failure are extremely costly to the Medicare system. In FY 2011, heart failure was one of the most costly diagnoses (after septicemia and pneumonia) for rehospitalizations from SNFs (OIG, 2013). In total, patients with heart failure rehospitalized from SNFs accounted for 4.5% of all Medicare costs associated with rehospitalizations from SNFs in FY 2011 (\$643 million of Medicare spending) (OIG, 2013).

Medicare

The Medicare program was established in 1965 under the Social Security Act (Title XVII) (P. L. 89-97). Over the years, Medicare has evolved, including the addition of an option for participants to choose managed care rather than coverage through the traditional FFS program. Because Medicare is the primary payer of the skilled benefit received in a SNF, it is important to understand the evolution of the program since its inception.

Fee-for-Service Medicare

Medicare (referred to as original, traditional, or FFS Medicare) provides insurance to individuals aged 65 years or older who, prior to 1965, struggled to get health care coverage (National Academy of Social Insurance, n.d.). In 1972, Medicare coverage extended to individuals under the age of 65 with disabilities and end-stage renal disease (ESRD) (CMS, 2015e). FFS Medicare is composed of two main parts: Part A (Hospital Insurance), which covers inpatient hospitalizations, SNF care, hospice and some home health services; and Part B (Medical Insurance) which covers outpatient services such as doctors' visits, diagnostic tests, and medical supplies (CMS, n.d.g.).

Individuals pay into Medicare throughout their working careers and become eligible upon turning age 65, incurring a disability or developing ESRD. Once eligible, they continue to pay for services: while there are no premiums for Part A, patients who use the inpatient hospital coverage will encounter a deductible (the amount the patient is responsible for paying before Medicare begins to pay - \$1,408 as of 2020) and a daily copayment (a fixed payment for a service provided -- \$352 per day for each episode of care from days 61 through 90 and \$704 per day for days 91+) (CMS, 2019a; Glied, 1999; Medicare.gov, 2017). Similarly, those who use the SNF benefit will have all costs covered from days 1 through 20 following a qualifying hospitalization (at least 3 days), a daily co-insurance of \$176 (as of 2020) for days 21 through 100, and are responsible for all costs beyond day 100, for each episode of care (CMS, n.d.g.; CMS, 2019a; Medicare.gov, n.d.a.; Medicare.gov, 2017). A patient can enter into a new benefit period once 60 consecutive days have lapsed since receiving inpatient hospital or SNF care (CMS, 2015b). Part B, on the other hand, does have

a monthly income-adjusted premium and typically, a 20% coinsurance (a percentage of the costs the patient is responsible for after reaching the deductible; e.g. the patient pays 20% and Medicare pays 80%) on all outpatient costs after the deductible has been met (Glieb, 1999; Medicare.gov, n.d.a.).

To assist in the costs not covered under Part A and B of FFS Medicare, private Medigap plans began offering supplemental coverage starting in the 1970s (National Association of Insurance Commissioners, 1992). Medigap policies are offered through private health insurance companies. In 2003, the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) (P.L. 108-173) added prescription drug coverage to FFS Medicare (referred to as Part D) through the purchase of private insurance plans (Congress.gov, 2003). Prior to the MMA, FFS beneficiaries had no prescription drug coverage through Medicare (except for a brief time under the Medicare Catastrophic Coverage Act of 1988 (P. L. 100-360) which was later repealed) (Antos, 2005). The expansion of prescription drug coverage under the MMA and the establishment of Medigap policies created more comprehensive coverage for FFS patients.

Medicare Advantage

FFS Medicare was pivotal to expanding health care coverage to older adults and individuals with disabilities, but the expansion of Medicare to include managed care brought with it the hope of offering beneficiaries more choice in their health care coverage, improving coordination among providers, and generating cost-savings to the Medicare program (McGuire, Newhouse, & Sinaiko, 2011). The following section describes the concept of managed care and how it became incorporated into Medicare through MA.

What is managed care? Managed care is a broad term used to label the majority of plans in the private health insurance marketplace (e.g. HMOs, PPOs, and POS and PFFS plans) and the various mechanisms used by them to coordinate care (Glied, 1999). Managed care plans first emerged in the early 20th century with the establishment of health cooperatives for farmers, teachers and workers in need of health care during the Great Depression (National Council on Disability, 2013). The concept of managed care in the U.S. health marketplace has changed dramatically over the years and continues to evolve as a way to insure and provide health care to patients.

Managed care plans vary in the way they are structured, but they all share the commonality of having a contract with the enrollee as well as with the entity that pays for the coverage (e.g. the individual consumer, employer, or government program such as Medicare or Medicaid) (Glied, 1999). This contract typically guarantees delivery of a defined benefit package (e.g. preventative, outpatient and inpatient services) and routinely contains cost-sharing provisions, making enrollees responsible for copayments, deductible and coinsurance (Glied, 1999). In addition, most managed care plans operate a network of participating providers from which patients can seek care. To discourage patients from seeking care outside of the network, cost-sharing is typically higher when patients use out-of-network providers (Glied, 1999). These mechanisms ensure that patients share in the cost of their health care and thus incentivize patients to more efficiently access and use the health care system.

Managed care plans also use various mechanisms to influence provider behavior. Plans can select which providers they would like to participate in their network; choose how

they will pay providers (e.g. capitated, fee-for-service or salaried); and select how they will monitor patient and providers' service utilization (e.g. utilization management, restrictive networks, disease management programs, and continuous quality improvement) (Gadbois et al., 2018; Glied, 1999; Meyers, Mor, & Rahman, 2018). All of these mechanisms are thought to enable managed care plans to save costs. Table 2.1 elaborates on the various payment mechanisms used to influence providers' care by explaining each type of payment method, the incentives it creates for providers and how the payment structure can work to influence their behavior. Table 2.2 provides an overview of managed care mechanisms used to help manage costs and maintain quality of care. The table describes the goal of each mechanism, how it works, and how it incentivizes patients and providers.

Table 2.1: Financial Incentives to Providers

	Fee-for service payments	Capitation	Salary
How it works	<ul style="list-style-type: none"> Providers reimbursed for each unit of care they provide 	<ul style="list-style-type: none"> Pay providers on a capitated basis in which they receive a payment for each patient per month 	<ul style="list-style-type: none"> Providers are paid a set amount no matter how many patients they see
Incentives for providers to control costs	<ul style="list-style-type: none"> Offers few incentives to control costs. Providers may deliver more care than is warranted 	<ul style="list-style-type: none"> Providers are at financial risk for the costs of care If costs exceed the capitation payment, they lose money. If the capitated payment exceeds costs, they profit. 	<ul style="list-style-type: none"> Salaried providers have few financial incentives to increase productivity and efficiency besides the threat of being let go
How managed care plans use payment to influence providers	<ul style="list-style-type: none"> Some insurers withhold a portion of provider reimbursement. Providers that fail to meet performance targets regarding cost, patient satisfaction and/or quality may not receive these funds. Providers that meet these performance targets may be rewarded with bonus payments 	<ul style="list-style-type: none"> Financial risk incentivizes providers to provide better-coordinated and appropriate care, including primary prevention and screening to reduce costs associated with poor health outcomes. Providers may receive bonus payments if certain benchmarks are met Providers try to reduce the average cost across patients so that the capitated payments are more than their costs leading to savings Insurers may risk-adjust payments to promote access among higher cost patients 	<ul style="list-style-type: none"> To encourage more efficient behavior, insurers may incentivize salaried providers through the use of bonuses when certain goals of productivity are met

Glied, 1999; Gold, 1999

Table 2.2: Managed Care Mechanisms

	Restrictive Network	Utilization Management	Disease Management Programs	Continuous Quality Improvement
Goal	<ul style="list-style-type: none"> To ensure quality of care, plans negotiate rates when contracting 	<ul style="list-style-type: none"> To control costs To ensure that the care provided is medically necessary and cost-effective, and that length of stay is appropriate 	<ul style="list-style-type: none"> Involves identifying costly conditions (such as heart failure) and working to better manage those specific conditions 	<ul style="list-style-type: none"> Aimed at providing more efficient and less costly care to patients
How it works	<ul style="list-style-type: none"> Managed care plans contract with local, preferred providers that, in exchange for a discounted negotiated rate, provide enrollees with the full range of covered services. Managed care plans may set specific parameters of care for SNFs to follow to try to influence their overall care 	<ul style="list-style-type: none"> Case managers may perform a preadmission review, an admission review, a continued-stay review and discharge planning (utilization management varies by each plan) Plans monitor and identify high-cost areas such as specific providers and/or patients/services. Results are sent back to managers and providers for immediate correction All non-emergent services must be pre-authorized to determine appropriateness of care and to ensure that participants are using network providers. Emergent services are reviewed retrospectively. 	<ul style="list-style-type: none"> Managed care plans develop programs focused on managing costly diseases through self-care patient education and preventive services Case managers are often assigned to patients to help coordinate care and connect them with services and resources both within their plan and outside of their plan coverage 	<ul style="list-style-type: none"> Plans look at care processes that could be more efficient or effective, with the aim of improving quality of care Patient surveys may be used to provide useful feedback Plans may be rated based upon quality measures. This information may then be made publicly available
Incentives to patients	<ul style="list-style-type: none"> Patients seek care in-network to avoid higher cost-sharing or their insurer potentially not paying for care received out-of-network 	<ul style="list-style-type: none"> To ensure that patients receive the most appropriate care for their needs – leading to better health outcomes Services provided without pre-authorization may not be covered, thereby discouraging them from seeking out of network care. 	<ul style="list-style-type: none"> Better health outcomes More autonomy and understanding of how to care for their condition 	<ul style="list-style-type: none"> Few, but the surveys have the potential to provide them with a feeling of input in their care

	Restrictive Network	Utilization Management	Disease Management Programs	Continuous Quality Improvement
Incentives to providers	<ul style="list-style-type: none"> • Must abide by the plan's standards of care to maintain their contract and also to ensure that they receive reimbursement for services rendered • Contracted providers get more referrals 	<ul style="list-style-type: none"> • To ensure that the patient is receiving the most appropriate care in the most appropriate setting; to reduce unnecessary duplication of testing or other services 	<ul style="list-style-type: none"> • Better health outcomes can lead to financial bonuses 	<ul style="list-style-type: none"> • Reviews and examination of processes and care gives providers information they can act and use to improve • Incentivize providers to perform well and hold them accountable

Blumenthal & Squires, 2015; Gadbois et al., 2018; Glied, 1999; Gray & Field, 1989; Spector, 2004

Managed care and Medicare. Health spending grew markedly in the years following the enactment of Medicare in 1965, from an average of 9% per year from 1960 to 1965 to 12% per year from 1966 to 1973 (Catlin & Cowan, 2015). Managed care in the private marketplace had demonstrated cost savings through cost-containment mechanisms described previously (e.g. utilization management, restrictive networks, care coordination) (McGuire et al. 2011; Manning, Leibowitz, Goldberg, Rogers, & Newhouse, 1985; National Council on Disability, 2013). Therefore, Medicare looked to managed care as a way to restrain program spending through beneficiary enrollment in presumably more cost-efficient and innovative private insurance companies (Lagoe, Aspling, & Westert, 2005; Office of the Assistant Secretary for Planning and Evaluation (ASPE), 2009; McGuire et al., 2011; MedPAC, 2001; Prospective Payment Assessment Commission, 1997; Zarabozo, 2000). At the same time, the goal was to provide beneficiaries with alternative care and coverage options to the traditional FFS program (ASPE, 2009; MedPAC, 2001; McGuire et al., 2011; Prospective Payment Assessment Commission, 1997). Policymakers hoped that the creation of a competitive marketplace where plans competed for customers would lead to increasingly efficient plans that saved Medicare money (ASPE, 2009).

Managed care, however, was met with skepticism, especially in the medical field (Thomas, n.d.). In particular, leaders from the American Medical Association (AMA) feared that managed care would lead to socialized medicine and that physicians would lose their autonomy because they would be held accountable by managed care plans to keep health care costs down while also meeting set standards of care (Thomas, n.d.). In addition, opponents feared that due to the profit motive of managed care plans, health care providers would

provide poorer quality care as well as fewer services (Reinhardt, 2013). Policymakers countered opponents' fears of managed care by theorizing that if plans provided worse care for patients then they would be hurt financially by having fewer beneficiaries enroll in their plans (Reinhardt, 2013).

Since Medicare's enactment in 1965, the U.S. government has partnered with managed care plans to offer coverage for beneficiaries (Davis & Burner, 1995). In the beginning, managed care plans were reimbursed for care provided to Medicare beneficiaries on a reasonable cost basis, the same as other Medicare program providers (Davis et al., 1995; Zarabozo, 2000). HMOs, however, were introduced to Medicare under the HMO Act of 1973 (P.L. 93-222) through demonstration projects, with a goal of controlling costs (National Council on Disability, 2013; Zarabozo, 2000). The demonstration Medicare HMOs differed from managed care plans at the time in that they were to provide all medical services through a single organization and were reimbursed on a capitated basis per enrollee rather than FFS (Smith Mueller, 1974). The HMO Act aimed to expand health care from the typical FFS model to that of managed care, which was thought to provide better health outcomes and cost-savings (Smith Mueller, 1974).

Following the HMO Act and throughout the 1970s and 1980s, the enrollment of Medicare beneficiaries in HMOs under the demonstrations lagged behind that among privately insured individuals until the 1982 passage of the Tax Equity and Fiscal Responsibility Act (TEFRA) (P.L. 97-248) (Davis et al., 1995). Under TEFRA, Medicare created prepaid, capitated contracts with HMOs to provide Medicare beneficiaries with managed care coverage (McGuire et al., 2011; DHHS, 2007). Specifically through TEFRA,

HMOs were paid 95% of the adjusted average per capita cost (AAPCC) of the comparable cost of caring for a patient under FFS Medicare (McMillan, Lubitz & Russell, 1987). If HMOs had a surplus from the 95% AAPCC and their adjusted community rate (ACR), HMO plans were required to share those cost benefits with their beneficiaries by either adding benefits or lowering premiums (McMillan et al., 1987). The purpose of Medicare's reduced payment to HMOs was to incentivize them to be more cost efficient and to save Medicare money (McGuire et al., 2011). Following TEFRA, HMOs saw steady growth in enrollment (McGuire et al., 2011; DHHS, 2007). By 1995, over 3.2 million Medicare beneficiaries (nearly 9% of the Medicare population) had enrolled in a Medicare HMO -- nearly double that from 1983 (Davis et al., 1995; Zarabozo, 2000).

One of the most pivotal additions to Medicare occurred under the Balanced Budget Act of 1997 (P.L. 105-33) – the establishment of Medicare+Choice (also referred to as Part C and later renamed MA under the MMA of 2003) (CMS, 2015e). Prior to Medicare+Choice (under TEFRA), Congress had authorized Medicare to contract with HMOs to provide beneficiaries with managed care coverage in which HMOs were reimbursed on a capitated basis, as described previously (McGuire et al., 2011; DHHS, 2007). However, the establishment of Medicare+Choice plans expanded the managed care options from just HMOs to other types of plans such as PPOs, PFFS, or POS plans (Zarabozo, 2000). All of these plans are required to offer the same coverage as FFS Medicare Part A (Hospital Insurance) and Part B (Medical Insurance) and in some cases they offer more coverage (e.g. vision and dental) (Medicare Rights Center, 2016); in addition, most plans (87%) currently cover Part D as well. Each of these plan types varies significantly in terms of their structures,

payments to providers and beneficiary cost-sharing mechanisms. This will be discussed in more detail below.

Under the BBA of 1997, the payment method also shifted a bit for Medicare+Choice (now MA) plans to promote equal access to MA plans among Medicare beneficiaries nationally. In particular, Congress raised the payment floor for rural areas (and later urban areas under the MMA of 2003) to better ensure that beneficiaries were able to enroll in a MA plan irrespective of region (KFF, 2016). Despite this change, rural area residents continued to have difficulty accessing MA plans (McGuire et al., 2011; Shoenman, 1999). Many MA plans saw their reimbursement rates fall well below that of the 95% AAPCC (but still above the floor) due to lower and often fluctuating payment rates for rural counties; therefore, many HMOs left the Medicare marketplace (Shoenman, 1999). In response, Congress dropped the 95% AAPCC payment requirement through the MMA of 2003, which led to HMOs being paid more than the AAPCC and ensured that both rural and urban Medicare managed care plans received payments at least equal to FFS Medicare (McGuire et al., 2011).

In addition, as of 2006, all MA plans are required to submit a bid to Medicare containing an estimate of their costs per enrollee for services covered under Parts A and B (KFF, 2016). All bids are compared by Medicare to a benchmark, which is a formula based on the total amount Medicare will pay in a specific county (KFF, 2016). The benchmarks are set so that if a plan bids higher than the benchmark, beneficiaries are required to pay the difference between the bid and the benchmark through monthly premiums (KFF, 2016; McGuire et al., 2011). However, if the bid is lower than the benchmark, the MA plan gets 75% of the difference, which they are required to give back to their beneficiaries in the form

of supplemental coverage and lower premiums, and Medicare gets 25% of the difference, which goes back into the program (KFF, 2016; McGuire et al., 2011).

Medicare Advantage models. Medicare reimburses all MA plans on a capitated per member per month basis. Plans, however, have broad discretion in how they use these funds, resulting in varying methods used to pay providers (e.g. salaried, capitated or FFS), provide services and impose cost-sharing obligations on beneficiaries. The next few paragraphs will provide an overview of the specific MA plan options: HMOs, PPOs, PFFS, POS and Special Needs Plans (SNPs). The rates of enrollment into each type of plan will be discussed in the following section.

As described earlier, Health Maintenance Organizations were one of the original types of managed care plans offered through Medicare as an alternative to the traditional FFS program. HMOs come in a variety of different plan types, including Staff, Group, and Individual Practice Associations (IPAs) all of which contract with Medicare on a capitated per member per month basis (Langwell, 1990). The operator of the HMO Staff model owns the facilities within which care is provided and employs all of the physicians and staff that work and/or provide care for the HMO (Langwell, 1990). Providers of HMO Staff models typically work on a salaried basis directly and solely for that particular HMO (Langwell, 1990). Group HMO models contract with medical groups and pay providers on a capitated basis for providing care to their HMO members (Langwell, 1990). Lastly, IPA models contract with and pay individual providers both on capitated and FFS basis (Langwell, 1990). These HMO models share the commonality of being paid by Medicare on a capitated basis, operating within a specific network and encouraging beneficiaries to stay within that

network – going out of network may incur more coinsurance or the service may not be covered.

Preferred Provider Organizations evolved during the 1970s and early 1980s as a less-restrictive alternative to HMOs (Kongstvedt, 2013). PPOs are managed care plans that operate within a network of providers, but unlike HMOs, PPO enrollees typically do not need a pre-authorization to seek care from other physicians, such as specialists, thus allowing them to have more freedom of choice in their overall care (Gabel & Ermann, 1985). However, PPOs do require that any non-urgent, elective hospitalizations or procedures be pre-authorized by the insurer to ensure clinical necessity (Kongstvedt, 2013). Pre-authorizations aim to ensure that the proposed services are necessary and are provided in the most cost-effective manner and setting. Patients with PPO coverage typically pay a monthly premium and cost-share with the insurer through deductibles and copayments. PPO patients who use preferred providers within their PPO network have lower costs than if they seek care out-of-network. Compared to HMOs, PPOs typically contract with larger networks of local “preferred” physicians, hospitals and SNFs in which providers get a guaranteed flow of patients (Kongstvedt, 2013). In turn, providers agree to be reimbursed by the PPO at a discounted rate and to subject themselves to such mechanisms as utilization management that oversee the care provided to patients to ensure quality of care, but also to avoid unnecessary costs (Kongstvedt, 2013). Any costs incurred above the agreed upon terms of the contract between PPOs and providers falls on the provider (Kongstvedt, 2013).

Point of Service plans are essentially HMOs that aim to compete with PPOs by providing enrollees with greater freedom to select providers (Bell, 1992; Kongstvedt, 2013).

In POS plans, patients are provided care within a network similar to that of an HMO, but are also able to seek care outside of the network (Kongstvedt, 2013). Like PPOs, patients encounter higher deductibles, copayments and/or coinsurance for services provided out-of-network (Kongstvedt, 2013). In addition, if the patient does decide to seek care outside of the HMO network, the POS plan may require that the care be preauthorized and that inpatient stays be under continuing review to ensure cost-savings (Kongstvedt, 2013).

For Medicare beneficiaries who wish to have few network restrictions, but want a benefit package that is broader than FFS Medicare, Private Fee-for-Service plans are available. These are MA plans that vary in their network participation, which means that some operate within a specific network, have a partial network or do not have one at all. The benefits for PFFS enrollees are that they typically have more freedom to choose which providers they can seek care from, similar to FFS Medicare, but also receive additional benefits such as prescription drug coverage within their plan similar to other MA plans (HMOs, PPOs and POS plans). Like HMOs, PPOs and POS plans, PFFS beneficiaries typically pay a monthly premium and share in the costs of their care. One unique aspect of PFFS plans is that they do not require or use pre-authorizations (CMS, 2012). Providers who participate in the PFFS networks are reimbursed by the plans on a FFS basis, which relieves them of much of the financial risk but leaves the financial risk with the PFFS plan (CMS, 2012). As described earlier, providers who are reimbursed on a FFS basis may have less incentive to limit their costs, which could have the potential to make the cost of care for PFFS patients higher than other MA plans.

Special Needs Plans (SNPs) were established by the MMA of 2003 to allow managed care to serve dual eligibles (individuals eligible for both Medicare and Medicaid) and individuals living in institutions or with certain chronic illnesses (CMS, 2016b; McGuire et al., 2011). Although SNPs comprise the same plan types as regular MA plans -- HMOs, PPOs, etc. – they are specifically tailored to eligible beneficiaries. Most importantly, SNPs can offer both benefit packages (Medicare and Medicaid) through a single plan with one set of providers (Milligan & Woodcock, 2008). This addresses the lack of coordination between Medicare and Medicaid typical for dual eligibles enrolled in non-SNP options, thereby resulting in poorer health care quality and outcomes and increased costs to both systems (Grabowski, 2009; Haber & Mitchell, 1999; Merrell, Colby, & Hogan, 1997; Milligan et al., 2008).

All SNP plans must offer prescription drug coverage (unlike non-SNP MA plans, which are not required to offer prescription drug coverage) (CMS, 2016c). Like other MA plans, all SNPs are reimbursed by Medicare (and Medicaid for dual eligibles) on a capitated basis and can choose how they wish to reimburse participating providers (Verdier, Gold, Davis, 2008). Non-dually eligible Medicare beneficiaries who enroll in SNPs typically share in the costs of their care through a monthly premium, deductibles, coinsurance or copayments depending upon the plan (CMS, 2011). Dually-eligible Medicare beneficiaries, on the other hand, have such costs covered through Medicaid (CMS, 2011).

Current enrollment – FFS versus MA plans

Upon eligibility, Medicare beneficiaries may opt for FFS Medicare or choose among private MA plans (HMO, PPO, POS, PFFS, or SNPs, if they qualify). Historically,

beneficiaries have predominantly chosen FFS Medicare, although the proportion choosing MA has risen to historic highs. Indeed, enrollment in MA plans quadrupled from 2004 to 2019 (5.3 to 22 million beneficiaries), a trend that is expected to continue. In 2019, 34% of all Medicare beneficiaries had enrolled in a MA plan (Jacobson, Freed, Damico, & Neuman, 2019); by 2029 it is predicted that 47 percent Medicare beneficiaries will be enrolled in an MA plan (Jacobson, Freed, Damico, & Neuman, 2019). Most (64% in 2016) enroll in HMOs, while PPOs came in second with 30% of MA enrollment (KFF, 2016). The remaining MA coverage in 2016 comprised only 1% of Medicare beneficiaries enrolled in a PFFS plan and 4% of beneficiaries in an “other” plan (e.g. demonstrations, pilots, Program for All Inclusive Care of the Elderly (PACE) plans) (KFF, 2016). POS plans were not included in the total numbers due to highly limited enrollment. SNPs are primarily HMOs and were likely included in the total HMO numbers. However, enrollment in SNPs has increased over the years (from 0.5 million beneficiaries in 2006 to 2.1 million in 2016). Most SNP enrollees are dual eligibles (82%) (KFF, 2016).

Demographics of FFS and MA beneficiaries

Demographic characteristics vary between Medicare beneficiaries who enroll in MA versus FFS Medicare. Overall, individuals who enroll in MA plans are more likely to be older, of Hispanic origin, have less education and lower incomes, and report being in better health than individuals who enroll in FFS Medicare. Data from the 2012 Medicare Current Beneficiary Survey (MCBS) indicates that a higher proportion of MA than FFS beneficiaries are aged 65 years or older (86.3% and 83.5%, respectively) (AHIP, 2019). This is in contrast to beneficiaries under age 65 years who are less likely to enroll in MA (13.7%) than FFS

(16.5%) (AHIP, 2019). There are little to no gender differences in enrollment into MA versus FFS; females constitute the majority of enrollees in both types of plans (56.8% for MA and 52.9% for FFS) (AHIP, 2015; AHIP, 2019; Elliot, Haivland, Orr, Hambarsoomian & Cleary, 2011; Keenan, Elliott, Cleary, Zaslavsky & Landon, 2009; Mirel, Wheatcroft, Parker & Makuc, 2012).

Hispanic beneficiaries are more likely to enroll in MA (14%) than FFS Medicare (6%) (AHIP, 2015; AHIP, 2019; Elliot et al., 2011; Huckfeldt et al., 2017; Mirel et al., 2012). Beneficiaries who report being African American, Asian, or other race are more likely to enroll in MA (12%, 2.3%, and 6.1%, respectively) compared to FFS (10%, 1.9%, and 5.6%), though the differences are small (AHIP, 2015; AHIP, 2019). Non-Hispanic white beneficiaries are slightly more likely to enroll in FFS (82.8%) than MA (81.4%) (AHIP, 2015).

Beneficiaries who enroll in MA plans tend to have lower incomes compared to beneficiaries who enroll in FFS Medicare. For example, AHIP (2019) found that FFS beneficiaries are more likely to make \$50,000 or more a year (37.5%) compared to MA members (29.1%). In contrast, MA members are more likely to make less than \$20,000 annually (33.4%) compared to FFS beneficiaries (29.4%) (AHIP, 2019). Individuals who enroll in MA plans are typically more likely to have less than a high school education than their FFS counterparts (22.8% v. 19.1%, respectively) (Elliott et al., 2011; Keenan et al., 2009). Lastly, MA members are slightly more likely to rate their general health better (good, very good, or excellent) than FFS beneficiaries (41.1% v. 44%, respectively) (AHIP, 2019).

Coverage, costs and selection in MA

MA aims to provide beneficiaries with more choice in their Medicare coverage and to save Medicare money through coordinated care, but has it met these goals? MA has provided Medicare beneficiaries with more coverage options. However, with the expansion of MA plans, Medicare has not experienced expected cost savings and has also had to deal with selection-bias issues amongst MA plans. Moreover, there have been contradictory findings on whether or not MA plans provide better overall care than does FFS Medicare.

MA was successful in providing beneficiaries with more plan options. In 2019, 2,734 MA plans were available nationwide (Jacobson, Damico, & Neuman, 2018). Locally, Medicare beneficiaries typically had around 20 MA plans to choose from in urban areas and 10 MA plans in rural areas (Jacobson, Damico, & Neuman, 2014). By offering a variety of MA plans in addition to FFS Medicare, beneficiaries can theoretically select the plan that works best for their needs in terms of coverage and cost-sharing.

MA provides beneficiaries with a variety of health coverage options, but it has not demonstrated cost savings (Biles, Dallek & Hersch Nichols, 2004; McGuire et al., 2011; Zarabozo & Harrison, 2009). Indeed, MA plans are paid more than it would cost to cover similar patients in FFS Medicare (MedPAC, 2016; MedPAC, 2017; Patel & Guterman, 2017). HMOs, however, have shown greater cost containment than have PFFS and PPO plans (MedPAC, 2016; Zarabozo et al., 2009). As described earlier, all MA plans are required to submit a bid to Medicare that outlines their estimates of their costs per enrollee for services covered under FFS Parts A and B (KFF, 2016). All bids submitted are then compared to a benchmark formula that calculates the total amount Medicare will pay by

county (KFF, 2016). If a MA plan's bid is lower than the benchmark rate in that county, then the plan receives a payment equal to that of their original bid plus a 75% (now 50% as adjusted by the ACA of 2010) rebate that equals the difference between the benchmark and the plan's bid (Biles, Casillas, Arnold, & Guterman, 2012). In 2016, HMOs had an average bid of around 90% of FFS Medicare, but were paid, on average, 101% of FFS spending (MedPAC, 2016). In contrast, PPOs and PFFS plans had average bids above FFS Medicare; as a consequence, both were paid well above FFS costs (e.g., 108% for PPOs and 110% for PFFS) (MedPAC, 2016). HMOs' better performance is likely due to HMOs' restricted provider networks (Zarabozo et al., 2009). PFFS and PPO plans likely cost more than HMOs because they offer both in- and out-of-network coverage, thus making it harder to control costs. In summary, MA plans cost more, on average, per patient than Medicare FFS, but HMOs cost less than other MA options.

In addition to few, if any cost savings to Medicare, MA plans have been criticized for cherry picking healthier enrollees, also known as favorable selection. MA plans have been found to market to and try to enroll and retain healthier beneficiaries in order to reap savings (Goldberg, Trivedi, Mor, Jung, & Rhaman, 2017; Hellinger et al., 2000; Landon et al., 2012a; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Newhouse, Price, Huang, McWilliams, & Hsu, 2012; Rahman et al., 2015). If a MA plan can attract a large proportion of comparatively healthy members who have lower actual than predicted costs, then they can expect that their payments from Medicare will be more than the cost of providing care to those beneficiaries (Hellinger et al., 2000; McWilliams, Hsu & Newhouse, 2012). To thwart favorable selection, CMS implemented a new risk-adjustment system called

the CMS Hierarchical Condition Categories (CMS-HCC) model under the BBA of 1997, which took effect in 2004 (McWilliams et al., 2012). Under the new CMS-HCC model, payments to MA plans are adjusted based upon patients' demographic factors and inpatient and outpatient service use from the previous year (Pope et al., 2004).

Under the MMA of 2003, CMS also implemented new rules that prevent high-risk beneficiaries from switching from one plan to another throughout the year (McWilliams et al., 2012). Previously, Medicare beneficiaries could switch from a MA plan to FFS from month to month (Newhouse & McGuire, 2014). However, under the MMA, beneficiaries were locked in for at least 6 months. This was later extended in 2011 to lock patients into their choices for the last 10 and a half months of the year (Newhouse et al., 2014).

Policies aimed at preventing MA plans from favorable selection have worked to some extent. Newhouse and colleagues (2012), for example, found that there was less favorable selection following the adoption of policy changes limiting such tactics, with differences in expected spending between beneficiaries switching from FFS to MA compared to those who remained in the FFS program narrowing from 2004 to 2008 (by a factor of three) and mortality rates between MA and FFS beneficiaries narrowing from 1988 to 2008. Self-reported health and actual health care service use between MA and FFS beneficiaries have also narrowed over time (from 2001 to 2003 and again between 2006 and 2007) (McWilliams et al., 2012).

Although the gap has closed, evidence suggests that favorable enrollment and disenrollment to and from MA continues to occur. MedPAC (2012), for example, found that beneficiaries who switched from FFS to MA had 15% lower costs than beneficiaries who

remained in FFS. In contrast, the Newhouse et al. (2012) study reported earlier found that while favorable selection declined over time, those who switched from MA to FFS Medicare tended to be sicker than those who remained in MA, thus leaving MA plans with a comparatively less costly and healthier population of beneficiaries. Similarly, Goldberg and colleagues (2017) found that individuals who had experienced a nursing home stay within the prior year were more likely to disenroll from their MA plan into FFS. Reasons cited for the disproportionate disenrollment of higher cost, sicker beneficiaries from MA to FFS Medicare include more restrictive provider networks and more negative care experiences, as reflected in low satisfaction and provider ratings and more limited access to needed services in the former than the latter (Elliott et al., 2011; Riley, 2012). Some observers go as far to suggest that MA plans encourage sicker enrollees to disenroll if they become too costly (Riley, 2012).

Comparison of performance - FFS versus MA

Policymakers saw managed care plans as a way to improve quality for Medicare beneficiaries. However, the results since implementation of MA on satisfaction, access, utilization and outcomes compared to FFS have been mixed (Gold & Casillas, 2014). The following sections provide an overview of literature comparing MA to FFS.

Satisfaction. Studies assessing overall satisfaction with MA plans versus FFS Medicare have shown varying results, but most indicate that FFS beneficiaries are more satisfied compared to MA members, although some MA members rate their plans more highly. Using data from the Consumer Assessment of Healthcare Providers and Systems (CAHPS), several studies found that FFS scored higher overall on beneficiary care

experiences compared to MA (some studies compared all beneficiaries while others examined less healthy individuals) (Elliott et al., 2011; Keenan et al., 2009; Keenan et al., 2010; Landon Zaslavsky, Bernard, Cioffi, & Cleary, 2004; Mittler, Landon, Fisher, Cleary & Zaslavsky, 2010). Still other studies, comparing FFS to HMO plans, report contrasting results, with one study rating FFS better (Safran, Wilson, Rogers, Montgomery, & Chang, 2002), one study indicating no difference between the two types of coverage (Balsa, Cao & McGuire, 2007) and two studies reporting conflicting results (Beatty & Dhont, 2001; Pourat, Kagawa-Singer & Wallace, 2006).

Access. One of the key goals of managed care is to provide beneficiaries with improved access to preventive care, screening, and monitoring to prevent costly service utilization in the future. MA plans have been shown to provide their beneficiaries with better preventative care than FFS Medicare; they are more likely to provide mammograms, eye exams, influenza and pneumococcal vaccinations, and management of cardiovascular and diabetic care through cholesterol testing (Ayanian, Landon, Zaslavsky, & Newhouse, 2013b; Ayanian, Landon, Saunders, Pawlson & Newhouse, 2013a; Ayanian, Landon, Zaslavsky, Saunders, Pawlson & Newhouse, 2013c; Brennan & Shephard, 2010; Keenan et al., 2009; Landon et al., 2004).

Research also suggests that certain MA members are more likely to see a physician than their FFS counterparts. Cohen and colleagues (2012), for example, found that diabetic patients in SNPs had seen their physician 7% more frequently than diabetic patients in FFS Medicare. Similarly, Davidson and colleagues (2003) found that between 1994 and 1997, patients with heart failure (65 years or older) enrolled in MA were more likely to see their

primary care physician and specialists than FFS patients with heart failure (on average 87.8% vs. 74.2%). Beatty and Dhont (2001) found patients with disabilities felt that they had better access to primary care and that their health care services were more affordable in MA HMO than Medicare FFS coverage. The perception that it is easy to access care is key to encouraging patients to be proactive in their health care.

When comparing the quality of care accessed, Meyers, Mor, and Rahman (2018) found that MA members receive care from SNFs with lower overall star ratings and higher rehospitalization rates compared to FFS beneficiaries. They attributed this finding to the fact that because MA plans receive capitated payments for the care of their members, they are limited in the amount of money they are willing to spend. A recent MedPAC report (2017) reported that FFS reimburses SNFs at a rate 23 percent higher than that of MA plans. Therefore, MA plans may contract with SNFs who are willing to be paid at lower reimbursement rates, thereby potentially lowering the quality SNF care provided (Meyers et al., 2018). Those lower quality SNFs are then the only options available to MA members who are limited to in-network facilities. Meyers and colleagues (2018) raised concerns that the lower quality SNFs may contribute to poorer outcomes (of which has been demonstrated by previous research and will be discussed later).

Utilization. When comparing hospital use (e.g. emergency room visits, hospitalizations, and surgeries), length of stay, and costs between FFS and MA, findings varied. Overall, however, emergency room visits and hospitalizations were fewer and costs lower among MA patients. Raetzman, Hines, Barrett and Karaca (2015) found that mean costs per stay as well as length of stay were less for MA plans than for FFS Medicare. In

particular, they found that, on average, MA patients were hospitalized less for medical and mental health stays than FFS Medicare patients (66.7% and 1.7% vs. 69.1% and 2.2%), but more for surgical stays (25.8% vs. 22.8%). Moreover, MA members with medical hospitalizations had shorter lengths of stay than FFS patients (4.7 vs. 5.2 days) and their hospitalizations cost less (\$9,100 vs. \$10,000). Using data from the Minimum Data Set, the Provider Services File, Hospital Compare and Hospital Cost Reports, Huckfeldt and colleagues (2017) found similar projected cost savings for Medicare in their comparison of MA versus FFS care of patients admitted to a SNF with the diagnosis of a stroke, lower extremity joint replacement or heart failure. Huckfeldt and colleagues (2017) estimated that if FFS beneficiaries had the same patterns of SNF usage as MA members Medicare would see a cost savings of \$462.00 per stroke SNF episode, \$369.60 per joint replacement SNF episode and \$259.20 per heart failure SNF episode. Three studies comparing Medicare HMOs to FFS Medicare found that HMO patients had fewer emergency room visits and inpatient hospital days (Landon et al., 2012b; Mello, Stearns, & Norton, 2002; Dhanani, O’Leary, Keeler, Bamezai & Melnick, 2004). Rates of surgeries varied between MA and FFS by the type of procedure. MA plans had higher rates of Coronary Artery Bypass Graft (CABG) surgery than FFS Medicare (approximately 20% higher), but lower knee and hip replacement rates (10-20% lower) (Landon et al., 2012a). While suggestive, it is difficult to gauge whether such results are better or worse for MA or FFS Medicare in the absence of information about the appropriateness of the care provided or patients’ longer-term health outcomes.

Outcomes. Rehospitalizations are key indicators of poor quality care. Overall, MA plans appear to have fewer rehospitalizations than FFS Medicare. Huckfeldt and colleagues (2017) found MA members had fewer rehospitalizations from SNFs than FFS beneficiaries (19.3% v. 21.0%). In addition, they estimated that if FFS heart failure beneficiaries had the same rates of rehospitalizations as did MA members with heart failure, then Medicare would see a cost savings of \$526.30 per rehospitalization episode (Huckfeldt et al., 2017). Lemieux and colleagues (2012) found that MA members were 13% to 20% less likely to be rehospitalized (excluding rehospitalizations from SNFs providing rehabilitation) compared to their FFS counterparts during 2006-2008. They also specifically looked at the discharge health condition from the original hospitalization and found that the proportion of all FFS rehospitalizations related to heart failure was higher (7.6%) than those of MA (4.5%) (Lemieux et al., 2012). Anderson (2009) found that MA members had a lower rehospitalization rate of 13.6% compared to 18.6% for FFS beneficiaries as well. In their analysis of New York Medicare beneficiaries admitted to the hospital for an acute myocardial infarction, heart failure, or pneumonia between 2009 and 2012, Li and colleagues (2018) found that MA members had a lower risk for 30-day rehospitalization compared to FFS beneficiaries. In the comparison of outcomes for hip fracture patients in SNFs by insurance type (FFS vs. MA), Kumar and colleagues (2018) found that MA patients had shorter lengths of stay in the SNF (5.1 days) and were less likely to be rehospitalized within 30-days of SNF admission (1.2 percentage point lower 30-day rehospitalization rate) compared to FFS patients.

Over the years, the insurance industry trade association, America's Health Insurance Plans (AHIP), has produced several reports specifically comparing rehospitalizations between MA and FFS throughout different states. Results overwhelmingly point to MA plans outperforming the FFS program in terms of preventing rehospitalizations, with readmission rates ranging anywhere from 6% to 33% lower for MA patients than FFS patients (AHIP, 2009a; AHIP, 2009b; AHIP, 2009c; AHIP, 2010b; AHIP, 2010c). Specific to patients with heart failure, AHIP (2009a) found that MA members in California and Nevada had a 6% lower risk of potentially avoidable rehospitalizations compared to FFS beneficiaries, after controlling for comorbidities and demographics. Similarly, for patients with heart disease, AHIP (2009b) found that MA patients had fewer (27-29%) rehospitalizations than FFS beneficiaries.

Although most studies find that MA plans outperform FFS with respect to rehospitalizations, some do not: Raetzman and colleagues (2015) found that older MA patients (65 years and older) have a slightly lower percentage of potentially preventable rehospitalizations than FFS beneficiaries (16.9% v. 17.5%), but younger MA members (less than 65 years old) have a slightly higher percentage of rehospitalizations compared to their FFS counterparts (15.6% v. 14.5%). Smith, Frytak, Liou and Finch (2005) found differences in rehospitalizations for stroke patients in Medicare HMOs and FFS Medicare from 1998-2000, depending on diagnosis. On the one hand, HMO patients with a primary diagnosis of ischemic stroke or an ill-defined condition (e.g. rehabilitation services) were more likely to be rehospitalized within 30 days (adjusted hazard ratio 1.45 and 2.87) (Smith et al., 2005). On the other hand, HMO patients with fluid and electrolyte disorders or

circulatory/respiratory problems were less likely to be rehospitalized within 30 days (adjusted hazard ratio 0.54 and 0.77) (Smith et al., 2005). Using data from thirteen states from around the country, Friedman, Jiang and Russo (2009) found no significant differences in the rate of potentially avoidable rehospitalizations between FFS and MA members (about 18% for each). Similarly, Oh (2017) found no significant difference in rehospitalization rates between FFS and MA members (20% v. 21%) hospitalized at the Hospital of the University of Pennsylvania in 2012.

Lastly, two studies found that rehospitalizations were less likely in FFS than in MA plans. Friedman, Jiang, Steiner and Bott (2012) used data from five states in 2006 and found that after risk-adjustment and controlling for self-selection of a MA plan, enrollees in MA plans had a 7% higher risk of rehospitalization (excluding trauma) compared to FFS patients. In an earlier study examining 450 patients aged 65 years and older in San Diego, CA, Experton, Ozminkowski, Pearlman, Li and Thompson (1999) found that patients enrolled in an HMO were 3.51 to 5.82 times more likely to have preventable rehospitalizations (within 90 days of initial admission) than FFS patients.

Comparisons of MA plan types. Some types of MA plans appear to perform better than others with respect to quality, clinical care measures, overall ratings and rehospitalizations. In a recent comparison using Healthcare Effectiveness Data and Information Set (HEDIS) scores that measure the effectiveness, availability and experience of care, MedPAC (2014) found that HMOs outperformed PPOs on 38 out of 42 measures. Also using HEDIS scores, Schneider, Zaslavsky & Epstein (2005) found that not-for-profit MA plans scored better on four quality of care measures than did for-profit MA plans.

Similarly, in a comparison of for-profit HMO plans versus not-for-profit HMO plans, Ayanian and colleagues (2013c) found that non-profit plans performed better in terms of clinical measures and overall ratings. Finally, MedPAC (2014) and Ayanian et al. (2013a) found that more established MA plans outperformed newer plans. In summary, HMOs performed better on HEDIS measures than PPOs, non-profit plans were rated higher in quality, clinical measures and overall ratings than for-profit MA plans, and more established plans outperformed newer plans.

Other studies have found that specific MA plan types have fewer rehospitalizations than FFS Medicare. In a study examining rates of rehospitalizations of patients with diabetes in SNPs in five states, Cohen and colleagues (2012) found that SNP participants had lower rehospitalization rates (21.1%) than FFS patients (26.7%). Specific to HMOs, Zeng and colleagues (2006) found that Medicare HMO beneficiaries had at least a 25% lower rate of rehospitalizations compared to FFS beneficiaries, a difference the authors attribute to favorable selection by HMOs. Basu and Mobley (2007) found similar results, with HMO patients having fewer rehospitalizations (9%-17% lower odds) than FFS patients in 3 out of the 4 states examined (after controlling for demographics and illness severity). Both Zeng et al. (2006) and Basu and Mobley (2007) further determined that more established HMO plans performed better in preventing rehospitalizations. Basu (2012) later sought to determine if the race of an HMO beneficiary was a risk factor for rehospitalization. She found that HMOs had fewer avoidable rehospitalizations for all four races (white, African American, Hispanic and “other” races) compared to FFS beneficiaries in all three participating states (California, New York and Florida).

The lower rehospitalization rates found among MA plans may be because MA plans manage care better and have financial incentives that encourage providers to reduce wasteful spending. However, it is also possible that due to favorable selection, some MA plans have healthier patients overall who require fewer rehospitalizations. Regardless of the reasons behind the findings, the vast majority of literature supports the fact that MA members have fewer rehospitalizations than FFS patients. Of note, however, few of these studies focused on rehospitalizations from SNFs when comparing FFS versus MA. Therefore, this dissertation seeks to fill that gap.

Care coordination demonstrations and bundled payment initiatives

Policymakers have sought other ways to reduce health care spending and improve care coordination beyond managed care. These include demonstrations and bundled payment efforts aimed at determining the methods of payment and service provision that work best in FFS Medicare. FFS Medicare has been criticized for its lack of care coordination among providers (in particular from hospital to post-acute care) and its focus on payments for quantity of care over quality (Berenson & Burton, 2012; Sood, Huckfeldt, Escarce, Grabowski, & Newhouse, 2011). Some of the earlier demonstrations and programs seeking to improve FFS Medicare included the National Long-term Care Channeling Demonstration, Social/Health Maintenance Organizations (SHMOs) and EverCare.

More recently, several initiatives under the Affordable Care Act have sought to offer financial incentives to providers to better coordinate care for FFS beneficiaries. These include Accountable Care Organizations (ACOs) and the National Pilot Program on Payment Bundling. In addition, under the ACA the CMS Innovation Center (Section 3021 of the

ACA) was founded to help innovate and create models of payment and service delivery with the purpose of reducing health care costs (CMS, 2016c). Through the CMS Innovation Center, the Partnership for Providers (PfP) was established, which has two main components – Hospital Improvement Innovation Networks (HIINs) and the Community-based Care Transitions Program (CCTP). In addition, under the CMS Innovation Center, the payment system was adjusted in an effort to promote better care through the Bundled Payments for Care Improvement (BPCI) program. Many of these initiatives use similar financial incentives and care coordination efforts to those employed by MA plans, but apply those mechanisms to the FFS Medicare program. Table 2.3 provides an overview of such demonstrations and initiatives. Many of these have shown promise in providing FFS beneficiaries with better care coordination and cost savings to Medicare (Clarkwest et al., 2014; Dummit et al., 2015; Kane, Keckhafer, Flood, Bershansky, & Siadaty, 2003; Umansky, 2015).

Table 2.3: History of Select Demonstrations and Bundled Payments in Medicare

Year	Demonstration/ Bundled Payment	Description
1982- 1986	The National Long-term Care Channeling Demonstration	<ul style="list-style-type: none"> The goal was to test cost-savings using alternative community-based long-term care as opposed to institutionalized long-term care. Ten different states each had their own demonstration. A case manager was assigned to each client participating in the demonstration and was responsible for creating a care plan, helping beneficiaries access needed information and services and coordinating long-term care services in the community. The goal was to provide more efficient and cost-effective care while helping individuals stay in the community. The financial control model provided case managers with fixed budgets (60% of the average Medicaid nursing home rate) to incentivize cost-effectiveness. Medicare and Medicaid waivers also provided reimbursement for services (DIHS, 1987).
1985	Social/Health Maintenance Organizations (S/HMO)	<ul style="list-style-type: none"> A national demonstration that combined Medicare and Medicaid coverage into an integrated HMO plan (four first generation S/HMO-1 sites and one second-generation site S/HMO-II). Combined Medicare HMO acute-care coverage (hospital and outpatient physician services) with long-term care benefits (nursing home and custodial care). The goal was to more efficiently coordinate care between the acute and long-term care settings and to better control costs. Services were paid by a monthly capitated payment from Medicare and from the monthly premiums of S/HMO beneficiaries. S/HMOs were criticized for failing to better coordinate care between acute and long-term because of a lack of incentives for physicians and case management to coordinate care and improve patient outcomes (Miller & Weissert, 2003; Newcomer, Harrington & Friedlob, 1990).
1987	The EverCare Model (now called the UnitedHealthcare Nursing Home Plan)	<ul style="list-style-type: none"> Originally established as a demonstration program by CMS. Focuses on improving care for long-term care patients in nursing facilities by providing them with supplemental care from nurse practitioners in addition to care received from their primary care doctor. Nurse practitioners serve as the core of the care team, coordinating patient care by creating customized care plans and focusing on prevention. Fixed capitated payments are paid to EverCare by Medicare at a reduced rate (97.8% of the rate for MA plans) which puts EverCare at risk for costs that exceed the capitated payment thus incentivizing the program to better coordinate care and reduce costs. The Medicare Modernization Act (MMA) of 2003 created Medicare Advantage Special Need Plans (SNPs) modeled after EverCare to help improve and coordinate care for nursing home residents, dual-eligibles (those eligible for both Medicare and Medicaid) and for individuals with specific diseases including those with chronic heart failure (Kane et al., 2002; Kappas-Larson, 2008; Medicare.gov, n.d.b; Miller et al., 2003).

Year	Demonstration/ Bundled Payment	Description
1997	Program for All-inclusive Care for the Elderly (PACE)	<ul style="list-style-type: none"> Originally established as a federal demonstration prior to the Balanced Budget Act (BBA) of 1997. A capitated managed care program administered through Medicare and Medicaid (as section 222 and 1915c waivers, respectively) that coordinates acute and long-term care for community-dwelling individuals age 55 or older who are eligible for nursing home care (typically dual-eligibles) Local providers contract with PACE and form interdisciplinary teams that provide care for PACE beneficiaries and receive capitated payments from both Medicare and Medicaid (Miller et al., 2003).
2010	The Patient Protection and Affordable Care Act (ACA)	
	Accountable Care Organizations (ACOs)	<ul style="list-style-type: none"> Providers (including hospitals, groups of doctors, SNFs, and other health providers) are encouraged by Medicare to form ACOs (CMS, 2015a) This model creates financial incentives for providers through a shared risk model – providers are eligible for bonuses if they collectively keep health costs down while meeting certain quality measures, but also run the risk of financial penalties if their health care spending goes over set benchmarks (Benson et al., 2012; CMS, 2015d; CMS, 2016a) The goal is to improve overall care coordination and quality for FFS beneficiaries, with the end goal of saving Medicare money (i.e. through reducing duplication of services and medical errors) (Gold, 2015; Dickey, 2014).
	CMS Innovation Center (section 3021 of the ACA)	<ul style="list-style-type: none"> Established to innovative and create models of payment and service delivery with the purpose of reducing health care costs while maintaining or improving quality (CMS, 2016a). Uses input from key stakeholders in health care and local communities to ensure that new initiatives incorporate the perspectives of those individuals who work in the field, to ensure feasibility and to inform the selection of new partnerships (CMS, 2016a). Evaluates the results of its models as a way to gauge how well each initiative works (CMS, 2016a).
	Partnership for Patients (PfP)	<ul style="list-style-type: none"> The PfP has two primary goals: making the care provided in hospitals safer through a reduction in preventable hospital-acquired conditions and improving transitions across care providers thus reducing rehospitalizations (CMS, 2016e) Has two main features: <ul style="list-style-type: none"> -Hospital Improvement Innovation Networks (HIINs) – provide training, technical assistance and implement systems in hospitals to improve patient safety (CMS, n.d.b). -Community-based Care Transitions Program (CCTP)- aimed at improving care transitions from the hospital to other points of care within the community and reducing rehospitalizations (CMS, n.d.e.) .

Year	Demonstration/ Bundled Payment	Description
	Bundled Payments for Care Improvement (BPCI)	<ul style="list-style-type: none"> • Incentivizes providers—primary, acute, and post-acute—to coordinate care using bundled payments (CMS, 2016d). • Aims to determine if bundled payments to providers within a single episode of care (from acute hospital to post-acute care) results in better coordinated care, more appropriate service use and improved health outcomes (Cassidy, Dawe, Tsai, Lott, & Gnadinger, 2015). • Providers work within one of four models (one model focuses on the hospital and the other three on post-acute care providers). • The goal is to shift the financial risk to that of the providers so that they better coordinate care, thus saving money (American College of Physicians, Inc., 2013; Frakt & Mayes, 2012; Sood et al., 2011).

SNFs and Medicare

Definition of the SNF benefit

SNFs play a critical role in the care transition between an acute-care hospitalization and home for Medicare beneficiaries. Following a qualifying hospitalization (at least 3 days in length), Medicare beneficiaries in need of additional skilled care can receive care in a SNF under the SNF benefit. Medicare is the primary payer on a per diem basis for all skilled care provided within a SNF. (Medicare does not cover long-term care in SNFs). As described earlier, under FFS, Medicare covers a SNF stay following a qualifying hospitalization for up to 100 days. FFS beneficiaries using the SNF benefit are covered in full for days 1 through 20, incur a daily co-insurance for days 21-100 and are fully responsible for all costs beyond 100 days (CMS, n.d.g.). A patient can enter into a new benefit period once 60 consecutive days have lapsed since receiving inpatient hospital or SNF care (CMS, 2015b). Unlike FFS SNF coverage, MA plans vary in their cost-sharing, but most plans charge their beneficiaries copayments for care provided in SNFs (oftentimes a daily copayment) starting on their first day of SNF coverage (National Council on Aging, 2016).

Given the daily copayments under MA, some MA members have faced higher SNF out-of-pocket costs than FFS Medicare beneficiaries (NCOA, 2016). A recent study by Keohane, Grebla, Mor and Trivedi (2015) using data from the 2011 HEDIS found that MA members paid more for a combined hospital and SNF stay than FFS Medicare beneficiaries. On average, Keohane and colleagues (2015) found that MA members paid anywhere between \$314 to \$653 more in out-of-pocket expenses compared to FFS beneficiaries (for patients with a higher MA monthly premium and a lower monthly premium respectively) for

a hospital stay and 20 days of rehabilitation in a SNF. Recognizing the disparities in out-of-pocket costs for SNF care between FFS and MA members, in 2011 CMS implemented an ACA provision (section 3202) that prevented MA plans from charging more for SNF services than FFS Medicare (Moon, 2010; NCOA, 2016). To help control costs for MA members, under the ACA of 2010 (42 CFR 422.100(f)(4)), MA plans are also required to have an annual maximum out-of-pocket (MOOP) limit (\$6,700 in 2017) whereas FFS does not have an out-of-pocket maximum (Moon, 2010; Keohane et al., 2015; NCOA, 2016). In addition, some MA plans may not require a 3-day qualifying hospital stay prior to admission to SNF as compared to FFS requirements (Barry, 2013).

Goals of SNFs

The Medicare SNF benefit is focused on rehabilitation, in contrast to long-term services and supports, which involve maintaining or preventing declines in functioning, and are not covered under the Medicare program. SNFs provide Medicare beneficiaries with rehabilitation (physical, occupational, and speech therapy), skilled nursing care (including wound care) and social services to maintain their independence and return them to the same level of functioning that they had prior to their hospitalization (Association of Rehabilitation Nurses, n.d.). However, in some situations, patients may not be able to return to their previous level of functioning. Here, SNFs provide patients with comfort care and can help them and their families find a setting more appropriate for their needs. In some cases, placing a patient in long-term care in a nursing home may be the most appropriate setting, possibly within the same facility. Many nursing homes provide both skilled rehabilitation and long-term care. Facilities must be licensed as a Medicare provider to offer Medicare's short-term

post-acute/rehabilitative SNF benefit. This contrasts with long-term nursing home care, which provides individuals with assistance in their activities of daily living (ADLs) a result of declining physical functioning and/or cognitive impairment. This long-term custodial care is typically paid for out-of-pocket, by long-term care insurance, or via Medicaid.

Payment to SNFs and how it influences care – FFS versus MA

All skilled care (e.g. rehabilitation, nursing and social services) provided within a SNF is paid for by Medicare under the SNF benefit, but the payment methods differ between FFS and MA plans. All SNFs must be certified by CMS to provide Medicare beneficiaries with skilled nursing rehabilitation. Individual states certify SNFs as well. States also administer federal surveys that determine compliance or non-compliance with federal standards and, thus, each facility's eligibility to continue to participate in the Medicare program. While Medicare certifies all SNFs, MA members are more limited in their SNF selection than are FFS beneficiaries. All Medicare-certified SNFs can accept FFS beneficiaries for SNF care, provided a bed is available. In contrast, various MA plans contract with select SNFs. MA members must therefore seek care from SNFs that are in-network with their MA insurance plan. The varying payment methods used to reimburse SNFs under MA and FFS Medicare are discussed next.

The payment method for SNFs under the FFS system has changed over the years. Initially, SNF services provided under FFS Medicare were based on reasonable, retrospective costs (CMS, 2013; White, 2003). Under the original payment system, SNFs had little incentive to constrain costs. As a consequence, spending (for both daily and total costs) increased rapidly due to rising costs per day and increases in the volume and intensity of

services provided, resulting from “quicker and sicker” discharges from hospitals following the implementation of DRGs-based hospital reimbursement (Guterman & Dobson, 1986; White, 2003).¹ The more services provided under cost-based retrospective reimbursement, the more SNFs were reimbursed, leading to increased overall costs to Medicare.

Recognizing rising SNF spending, Congress adopted a case-mix adjusted prospective payment system (PPS) for SNFs with the BBA of 1997 (Section 4432) (White, 2003). Under the new system, payment was case-mix adjusted using Resource Utilization Groups (RUGs) as determined through resident assessments conducted using the Minimum Data Set (MDS), staffing weight adjustments, and geographic variations in wages (CMS, 2013). The new PPS changed SNF reimbursement from a retrospective daily payment to a daily, per diem rate that covers all costs (routine, ancillary (e.g. lab work, pharmacy, imaging) and capital/operating expenses) of care provided under the SNF benefit, theoretically incentivizing SNFs to be more efficient (Beeuwkes Buntin, Hoverman Colla & Escarce, 2009; CMS, 2013). However, SNFs still had few incentives to limit FFS beneficiaries’ lengths of stay (Huckfeldt et al., 2017). All skilled services provided under the FFS Medicare SNF benefit are billed to

¹ Prior to the Social Security Amendments of 1983 (P.L. 98-21), hospitals were reimbursed by Medicare on a retrospective cost-basis wherein they had few incentives to control costs thus leading to an increase in overall health care spending. Through the Social Security Amendments, CMS introduced a prospective payment system (PPS) for hospitals through the establishment of diagnosis-related groups (DRGs). Under the new PPS, hospitals are paid a single flat rate per type of DRG assigned to the patient. The flat payment rate under the PPS diminished hospitals’ incentives to provide more care to patients and therefore hospitals began discharging patients quicker and oftentimes sicker in order to increase their volume of admissions.

Medicare by the SNF using consolidated billing (established under the BBA of 1997 – Section 4432(b))².

Effective October 1, 2018, CMS issued a final rule (CMS-1696-F) outlining the Patient-Driven Payment Model (PDPM) under the SNF PPS (implemented fiscal year 2020 (beginning October 1, 2019)), which aims to replace the RUGs system and make the daily reimbursement rate for FFS beneficiaries based on their case-mix classification. The goal of the PDPM is to move away from the RUG model where SNFs are reimbursed for the volume of care provided (e.g. number of therapy minutes provided) to that of a model where SNFs are reimbursed based on the patient's admitting ICD-10 diagnosis and comorbidities. The PDPM also places a limit on the amount of time a patient can receive group therapy (i.e. physical, speech, occupational) to 25% to prevent SNFs from using group therapy instead of one-on-one therapy as a way to cut-costs.

Skilled nursing facilities contract with a number of MA plans to increase their referral sources for new patients, but must then follow the guidelines set out by each MA plan to maintain those contracts (Zigmond, 2013). When creating a new contract with a MA plan, SNFs and the MA plan must negotiate to determine the payment levels (depending on the services provided, case-mix, etc.) that will be paid to the SNF as well as the requirements

² Prior to consolidated billing, SNF services provided by the SNF and outside contracted suppliers were billed separately to Medicare, which caused potential duplication of billing and a breakdown of coordination of care (CMS, 2015c). Under consolidated billing, all Medicare claims for care received under the SNF benefit (excluding professional physician services (including physician assistants and nurse practitioners under the supervision of a physician), psychologists, hospice services and ambulance rides upon admission and discharge to SNF) are billed by the SNF alone (CMS, 2015c).

that SNFs must meet in the provision of care to patients (Blue Cross Blue Shield of Michigan, 2012; Zigmond, 2013). In some cases, SNFs have reported that MA plans pay less than FFS Medicare. As stated previously, the reimbursement rate for FFS beneficiaries is 23 percent higher than for MA members (MedPAC, 2017). The trade-off for lower payments from MA is that by contracting with MA, SNFs can expect a steady volume of patients enrolled in those plans (Zigmond, 2013). However, with a lower payment, SNFs may need to increase volume to make up for lost funds (Zigmond, 2013).

MA plans use several methods to promote cost-effectiveness. Like the broader Medicare program, these methods include requiring a determination of medical necessity to ensure that care provided to SNF patients is appropriate given the diagnosis (Cook, n.d.; UnitedHealthcare, 2016). These methods also include utilization review, which MA plans use to closely monitor beneficiaries' progress in their overall rehabilitation. Concurrent review is typically used, in which a patient's progress is documented daily by SNF staff to demonstrate the further need and appropriateness of SNF care (Harvard Pilgrim Health Care, 2016; UnitedHealthcare, 2016). If a MA patient does not show signs of improvement or progress in their rehabilitative therapy, then the MA plan may discontinue coverage for that skilled stay (Angelli Wilber & Myrtle, 2000). MA plans also detail specific parameters that must be followed in order for SNFs to be reimbursed (Angelli et al., 2000; UnitedHealthcare, 2016). Some MA plans, for example, place limits on the number of days and units of therapy allowed (Angelli et al., 2000; Gadbois et al., 2018). Physicians (both independent and medical groups) who work within SNFs enter into contracts with various MA plans and are paid using various payment arrangements (as discussed earlier – salary, FFS, capitated) in

which they must abide by the MA plan's strict guidelines in terms of service provision, costs and quality of care (MedPAC, 2016; Morrison, 1995; Robinson & Casalino, 1995). These various mechanisms used by MA plans to influence the care provided to their patients in SNF are likely to have an influence on the overall health outcomes of their patients.

Rehospitalizations from SNFs

What factors affect rehospitalizations from SNFs?

Rehospitalizations of patients from SNFs have recently become a policy focus because many readmissions are avoidable with appropriate care. Both individual beneficiary and SNF-level characteristics are associated with rehospitalization. Each is discussed in turn.

Individual-level factors. In general, patients discharged from a hospital to a SNF are at greater risk of rehospitalization than those patients who can safely be discharged home (Allen et al., 2011; Silverstein, Qin, Quay Mercer, Fong & Haydar, 2008). Once admitted to a SNF, several demographic and health factors relating to age, gender, race, admitting diagnosis, comorbidities and prior health care utilization increase a patient's risk of rehospitalization. Research suggests that older, male, Black individuals are more likely to be rehospitalized from a SNF than younger, female, white patients (Barker et al., 1994; Li, Cai & Glance, 2015; Neuman et al., 2014). Neuman et al. (2014) found that individuals who are hospitalized for general health, pulmonary or heart condition (including heart failure) are at greater risk of rehospitalization from SNF than individuals hospitalized for a surgical condition. They also found that risk of rehospitalization from a SNF is higher among individuals with more comorbidities. Similarly, Toles and colleagues (2014) found a direct relationship between the Charlson Comorbidity Index (CCI) score and rehospitalization risk.

SNF-level factors. There are a number of SNF level factors that influence a patient's risk of rehospitalization. These causes of rehospitalizations stem, in part, from poor coordination between hospital and SNF (Burton et al., 2012; Naylor, 2003; Naylor and Keating, 2009; Rahman, Foster, Grabowski, Zinn & Mor, 2013; Orr et al., 2016). They also reflect specific characteristics of the SNFs themselves, including survey deficiencies, ownership type, chain affiliation, size, and physical environment; staffing consistency, expertise, and behavior; and overall rehospitalization rates (Administration on Aging, 2012; AHIP, 2010a; Hutt et al., 2003; Lichman et al., 2010; Neuman et al., 2014; Rahman, McHugh, Gozalo, Ackerly, & Mor, 2016; Zimmerman et al., 2002).

Coordination between hospitals and SNFs is an important part of the transition between settings. Hospitals and SNFs should ideally have excellent care coordination and communication with one another to ensure that the patient's pertinent health information and aspects of care are fully understood. However, this is not often the case. Burton and colleagues (2012) describe one of the root causes of poor care coordination as the differences in technology and medical records between hospitals and SNFs. Without a consistent method to transfer health information, errors may occur, including gaps in coverage, incomplete medical histories, and misunderstandings about patients' current health status and medications (Clark et al., 2017; Committee on Quality of Health Care in America, Institute of Medicine, 2001). Naylor and Keating (2009) also identified poor communication between settings, not having a single point of contact to assist with the transition and a lack of education provided to both the patient and family members about the patient's illness, as contributing to poor quality care. Poor health literacy and language barriers were found to

inhibit coordination as well (Naylor, 2003). In qualitative interviews with SNF staff, Clark and colleagues (2017) found that despite SNF staffs' efforts to provide palliative care, discuss goals of care and code status with patients who had end-stage illnesses, patients chose to be readmit back to the hospital (Clark et al., 2017).

Forming preferred provider relationships between hospitals and SNFs has shown promise in reducing the risk for rehospitalization. Rahman, Foster, Grabowski, Zinn and Mor (2013) further demonstrated the importance of the hospital-SNF relationship in preventing rehospitalizations from SNFs by examining patients discharged to over 15,000 SNFs from 2,477 hospitals. The authors suggest that communication between clinical staff in both settings would be better where hospitals have created preferred provider relationships with local SNFs. This conclusion is reflected in the finding that SNFs with a high volume of patients from a particular hospital had a 4% lower rate of rehospitalizations compared to SNFs that received fewer admissions from a particular hospital (Rahman, Foster, Grabowski, Zinn & Mor, 2013). Moreover, the authors determined that if hospitals increased the number of discharges to a SNF by 10%, the likelihood of patients' rehospitalizations would decrease by 1.2 points. Schoenfeld, Zhang, Grabowski, Mor, Weissman and Rahman (2016) found similar results in their examination of how an increase in surgical hospital discharges to a select SNF might decrease 30-day rehospitalizations. The authors estimate that a 10% increase in the number of referrals to a specific SNF of patients who have lumbar spine surgery, CABG, and hip fracture hospitalizations can decrease the risk of 30-day rehospitalizations by 4%. Hospitals that form preferred SNF networks have demonstrated to have lower rates of rehospitalization than hospitals without SNF networks. Following

implementation of the HRRP, hospitals that formed preferred SNF networks saw a 4% reduction in rehospitalizations while hospitals that did not have a preferred SNF network only saw a reduction of rehospitalizations by 2% (McHugh et al., 2017).

SNF characteristics also predict rehospitalization rates, including survey deficiencies, ownership type, chain affiliation, size, and physical environment. CMS' Nursing Home Compare data has been used to predict rehospitalization risk in prior research. Specific to heart failure, Ogunneye and colleagues (2015) found that patients with heart failure admitted to SNFs with lower overall quality scores were at a greater risk of rehospitalization (22.2%) compared to patients discharged to higher overall quality SNFs (18.1%). However, their results did not reach statistical significance in both the adjusted and unadjusted models ($P=0.33$ and 0.19 , respectively). Unroe and colleagues (2012) found similar results to that of Ogunneye (2015) in that patients with heart failure discharged to a SNF with a one star overall quality rating were at a greater risk for rehospitalization (hazard ratio=1.08) and death (hazard ratio=1.15) within 90 days of SNF admission compared to their counterparts who went to SNFs with five star ratings. However, after adjustments for SNF characteristics such as size and ownership type, the risk for rehospitalization was no longer statistically significant, but risk for death remained significant (Unroe et al., 2012).

In their examination of risk of rehospitalization for FFS patients from over 12,000 SNFs, Pandolfi and colleagues (2017) found that a one star increase in the overall rating resulted in a decrease in the risk of rehospitalization for three primary diagnoses (after accounting for hospital and SNF characteristics) (0.26% point decrease for acute myocardial infarction, 0.73% point decrease for heart failure, and 0.45% point decrease for pneumonia).

In a similar study, Neuman, Wirtalla and Werner (2014) found that SNFs with the highest ranking for the health inspection star rating (5 stars) had lower rehospitalization rates compared to SNFs with the lowest inspection ratings (1 star) (23% v. 23.7%). While not related to patients with heart failure, research by Kimball and colleagues (2018) found that patients who had a total joint arthroplasty were at a greater risk for rehospitalization if they received post-acute care from a SNF with a lower overall star and/or staffing star rating compared to SNFs with higher star ratings in those categories.

SNFs' ownership status has been found to be associated with the risk of rehospitalization, with non-profit SNFs having lower risks of rehospitalizations compared to for-profit SNFs. Neuman and colleagues (2014) found that patients who received care in a non-profit SNF were less likely to be rehospitalized than their counterparts who received care in for-profit SNF (22.8% vs. 23.7%). In a comparison of for-profit SNFs versus government-run SNFs, Toles and colleagues (2014) found that patients in for-profit SNFs were more likely to be rehospitalized (1.21 vs. 1.05 adjusted hazard ratio). Similarly, Li and colleagues (2015) found that government owned SNFs had fewer rehospitalizations than for-profit SNFs (OR=0.91, p=0.000), and Zimmerman and colleagues (2002) found the patients in for-profit SNFs were nearly three times more likely (2.98 relative risk) to be rehospitalized than patients in nonprofit SNFs.

The association of chain and hospital affiliation rehospitalization risk has also been examined. Zimmerman et al. (2002) found that chain-affiliated SNFs were twice as likely (2.2 relative risk) to have their patients rehospitalized than SNFs not associated with a chain (Zimmerman et al., 2002). In contrast, Li and colleagues (2015) found that SNFs that were

part of a chain had reduced odds ($OR=0.97$, $p=0.000$) for risk of rehospitalizations compared to SNFs that were not part of a chain. In another study, Rahman, Foster, Grabowski, Zinn & Mor (2013) found that SNFs owned by hospitals had better care coordination and fewer rehospitalizations (4 percentage points lower) than SNFs without hospital ownership.

Using longitudinal Medicare claims data from 2005 to 2013, Konetzka and colleagues (2018) found similar results in that hospital-owned SNFs saw an increase in Medicare payments (increase of 17%) and fewer 30-day rehospitalizations and deaths (decrease of 5%) compared to SNFs who were not owned by a hospital (Konetzka, Stuart, & Werner, 2018). Similarly, Graham and colleagues (2017) found that freestanding inpatient rehabilitation facilities (IRFs) had higher rates of 30-day rehospitalization compared to hospital-based rehabilitation facilities. However, in later work, Rahman, Norton, and Grabowski (2016) found that there was no statistical association between a SNF ownership (hospital-based SNFs versus freestanding SNF) and readmission rates. They did find, however, that patients in hospital-based SNFs had shorter lengths of stay in the SNF compared to patients in freestanding SNFs (Rahman et al., 2016).

The size, physical environment and patient acuity mix of SNFs are associated with the risk of rehospitalization as well. Neuman et al. (2014) found that smaller SNFs (50 or fewer beds) had a lower risk of rehospitalization (22.7%) compared to larger SNFs (151 beds or more) (23.5%) (Neuman et al., 2014). However, Li and colleagues (2012) found that SNFs with higher admission volume (108 admissions or more) had fewer 30-day rehospitalizations (14%) than lower admission volumes (less than 45 admissions) (16%). Even the aesthetics of a SNF can have an impact on risk of rehospitalizations. Cleaner, less smelly and more

homelike SNFs were found to have lower risk of rehospitalizations (for infection) than SNFs with less than desirable aesthetics (0.61, 1.39, and 0.64 relative risk, respectively) (Zimmerman et al., 2002). Lastly, the acuity of the patient mix that SNFs serve can affect the rates of rehospitalizations. Research by Rahman, Zinn and Mor (2013) compared the rates of rehospitalizations of Medicare patients from hospital-based SNFs and stand-alone SNFs. Results revealed that following the implementation of the PPS for SNFs in 1998, many hospitals began to close their hospital-based SNFs resulting in an increase of rehospitalizations nationwide (12,000-18,000 extra). Free-standing SNFs began to replace those hospital-based SNFs that closed, but were unable to manage the high acuity patients that the hospital-based SNFs cared for resulting in an increase of rehospitalizations (Rahman, Zinn & Mor, 2013).

Another critical piece that contributes to rehospitalizations is staffing, including satisfaction and turnover rates. Zimmerman and colleagues (2002) explored the relationship between SNF staffing and rehospitalizations. They found that SNFs with staff who feel less satisfied in their job and overworked are more likely to have higher rates of rehospitalizations and that, in general, SNFs that did not promote staff satisfaction had higher rates of rehospitalization (for infection) than facilities that focused on ensuring staff satisfaction. In addition, they found that the greater the rate of turnover among full-time equivalent Registered Nurses, the higher the risk for rehospitalizations (1.83 relative risk) (Zimmerman et al., 2002). Thomas and colleagues (2012) found similar results with the greater the retention of licensed nurses in SNFs, the lower the rates of 30-day rehospitalizations.

Specifically, they found that SNFs that had a 10% increase in the retention of their licensed nurses experienced a 0.2% reduction in their 30-day rehospitalizations (Thomas et al., 2012).

The number of staff available for care of SNF patients has been found to affect overall rehospitalizations as well. Using Nursing Home Compare data from over 12,000 SNFs, Pandolfi and colleagues (2017) found that an increase in a SNF's nurse staffing rating by one star resulted in a percentage point reduction in the risk standardized readmission rate of 0.18%, 0.38%, and 0.22%, respectively, for Medicare FFS patients with an acute myocardial infarction, heart failure and pneumonia. Using national Medicare data examining FFS beneficiaries discharged to a SNF following a hospitalization, Neuman and colleagues (2014) found that SNFs that ranked highest in staffing ratings (i.e. staffing hours by a registered nurse, licensed practical nurse and nurse aide per resident day) had lower rates of rehospitalizations (19.8%) compared to SNFs with the lowest staffing ratings (25.5%). After adjusting for the discharging hospital, patient and SNF characteristics, the associations between staffing and risk of rehospitalization were weakened. Similarly, another study found that having additional medical staff, including more physicians, nurse practitioners and physician assistants, decreased rates of rehospitalizations (Intrator, Castle, & Mor, 1999).

Lastly, research by Rahman et al. (2016) revealed that potentially avoidable rehospitalizations could be avoided if patients were referred to SNFs with the lowest rates of hospitalizations. Ranking hospitals according to their adjusted rehospitalization rates from the previous year, Rahman et al. (2016) found that hospitals that discharged their patients to SNFs with the lowest rehospitalization rankings saw fewer rehospitalizations compared to patients discharged to SNFs with greater rehospitalization rates. Moreover, the results

revealed that the SNF's own rehospitalization rate had a greater influence on the risk of rehospitalization than referring hospital's rehospitalization rate.

What factors affect rehospitalizations of patients with heart failure from SNFs?

For patients with heart failure, a SNF's understanding of appropriate care during a post-acute stay can help prevent avoidable rehospitalizations. A study by Boxer and colleagues (2012) specifically examined rehospitalization rates in four SNFs in the Cleveland, Ohio area, and found that SNF staff (nurses, dietitians, physical therapists, certified nursing assistants, social workers and medical records staff) were unaware of any national heart failure guidelines, did not incorporate heart failure-specific care for their patients, did not request any heart failure-specific information such as the ejection fraction, weights and medication titration regimens from hospitals, only weighed their patients with heart failure weekly (likely missing any volume overload), and did not put their patients with heart failure on low-sodium diets (Boxer et al. 2012). Unfortunately, two of the four SNFs did not collect rates of rehospitalizations. However, in total for 2008, the rehospitalization rates from the other two SNFs were 18.4% for one and 43% for the other (this SNF had more patients with heart failure with multiple comorbidities likely contributing to the higher rehospitalization rate) (Boxer et al., 2012). Given that heart failure is one of the leading causes of potentially avoidable rehospitalizations, these rehospitalizations could have potentially been avoided had the SNFs had a better understanding of heart failure guidelines to better manage their patients' care.

Dolansky and colleagues (2012) examined the use of American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) guidelines in ensuring proper care

of cardiac patients post hospital discharge to a SNF. The guidelines focus on ensuring exercise tolerance so as not to overexert cardiac patients and providing education to patients on how to monitor and manage their symptoms (i.e. if they have chest pain, what to do and when to call 911, how to eat a healthy diet, manage their medications, and how to maintain their exercise plan) (Dolansky et al., 2012). Using data gathered from review of 80 charts for patients aged 65 years and older with a hospital discharge diagnosis of a cardiac event in two SNFs and in conducting interviews (N=31) with SNF staff (nurses and physical and occupational therapists), Dolansky et al. (2012) revealed that neither the exercise nor education guidelines as outlined by the AACVPR for cardiac patients following a hospitalization were followed in a consistent manner. This study's results indicate that while SNFs may be aware that cardiac care guidelines exist, the lack of adherence to and consistency in use of these guidelines may be less than ideal.

Current public policy approaches addressing rehospitalizations

Because rehospitalizations have become a predominant marker of quality of care (Kocher et al., 2011; Mor, et al., 2010; Yoo et al., 2015), the Affordable Care Act has targeted policy efforts towards holding hospitals financially accountable for them. With the success of the Hospital Readmissions Reduction Program (HRRP) under the ACA (Section 3025), the focus on accountability has turned to SNFs. The following section outlines the HRRP and describes new efforts (modeled after the HRRP) to hold SNFs financially responsible for potentially avoidable rehospitalizations under the Protecting Access to Medicare Act (PAMA) of 2014. In addition, this section details other efforts to help improve and track quality of care in SNFs: the SNF Quality Reporting Program under the Improving

Medicare Post-Acute Care Transformation Act of 2014 (P.L. 113-185) (the IMPACT Act) and Quality Assurance and Performance Improvement (QAPI) programs under the ACA.

Hospital Readmission Reduction Program. The HRRP imposes a monetary penalty on hospitals (up to 3% payment adjustment) for risk-adjusted avoidable rehospitalizations within 30 days of hospital discharge (CMS, 2015e). Initially, penalties for risk-adjusted avoidable rehospitalizations applied to Medicare beneficiaries with a diagnosis of heart failure, a myocardial infarction, or pneumonia (James et al., 2013). Recently, this list of conditions has been expanded to include acute exacerbation of chronic obstructive pulmonary disease (COPD), elective total hip arthroplasty and total knee arthroplasty (effective FY 2015); coronary artery bypass graft (CABG) (effective FY 2017); and an updated pneumonia measure to include aspiration pneumonia and patients with sepsis who have a diagnosis of pneumonia upon admission to the hospital (effective FY 2015) (CMS, 2015e). For fiscal year 2019, nearly 2,600 hospitals (83% of the 3,129 hospital evaluated under HRRP) will face a penalty for 30-day hospital readmissions totaling \$563 million under the HRRP (Rau, 2019). In addition, since the HRRP's inception, Medicare has seen a reduction of nearly 150,000 fewer 30-day rehospitalizations annually (Blumenthal, Abrams, & Nuzum, 2015). From 2010 to 2017, MedPAC (2019) determined that 30-day rehospitalization rates decreased 1 percentage point (16.7% to 15.7%, respectively) during which time the acuity of patients increased. Rehospitalizations of beneficiaries with heart failure have declined from 24.8% from FYs 2007-2010 to 22% from FYs 2011-2014 (Boccuti & Casillas, 2015). Critics cite disparities in the application of the HRRP; penalized hospitals (teaching and safety-net hospitals) are more likely to serve disadvantaged

populations (e.g., those with lower socioeconomic status) (Boccuti et al., 2015; Blumenthal et al., 2015; Carnahan et al., 2016). Still, initial results suggest success in reducing rehospitalizations even though there seems to be a need for more scrutiny of the HRRP.

Protecting Access to Medicare Act. Given this apparent success, public policy has now focused on using the HRRP as a model for financially incentivizing SNFs to reduce preventable rehospitalizations. As noted, rehospitalizations from SNFs are high and have adverse effects. To restrain spending and improve quality of care in SNFs, in 2014 PAMA amended the Social Security Act to penalize SNFs for potentially avoidable rehospitalizations. CMS estimated that these provisions may potentially save Medicare \$2.2 billion by 2027 (DHHS, 2014).

Under PAMA (Section 215), SNFs with high rates of preventable rehospitalizations have begun to see financial penalties, which started in October 2018 under what is called the Skilled Nursing Facility Value-based Purchasing Program (SNF VBP) (PAMA, 2014). SNFs are rated on their rehospitalizations using the SNF 30-Day All-cause Readmissions Measure, which determines the risk-standardized rate of all-cause unplanned hospital readmissions for Medicare FFS patients who enter a SNF following a qualifying hospital stay (DHHS, 2015; Medicare Learning Network, n.d.; Smith et al., 2015). The SNF admission must have occurred within one day of hospital discharge for a readmission from SNF to be considered a rehospitalization within 30 days (DHHS, 2015). The 30 day time period is meant to capture care of patients while in SNFs and when they have been discharged home from the SNF. At a future date (undetermined at this time), the SNF 30-Day All-cause Readmissions Measure will be replaced by the SNF 30-day Potentially Preventable Readmission Measure; this will

specifically focus on potentially preventable readmissions as opposed to the prior measure's all-cause rehospitalization criterion (Medicare Learning Network, n.d.).

Beginning October 1, 2018 under the SNF VBP, all SNFs had a 2% reduced payment from CMS to fund the incentive payment pool (Carnahan et al., 2016; Frilling, 2016). CMS then redistributed 50-70% of the 2% reduced payment back to the SNFs through the SNF VBP based upon the SNF's performance score (American Health Care Association, n.d.b.; Frilling, 2016). CMS kept the other 30-50% as savings to Medicare from the SNF VBP (AHCA, n.d.a.). Under the SNF VBP, SNFs' performance scores are calculated using the SNF 30-Day All-cause Readmissions Measure (and later the SNF 30-day Potentially Preventable Readmission measure) to determine their value-based incentive payment. SNF's overall performance scores are based upon both their achievement scoring (comparing their performance rate against all other SNFs' performance rates) and their improvement scoring (comparing their current performance to their performance score at baseline) (CMS, n.d.f.; Medicare Learning Network, n.d.). SNFs with the highest ranked performance scores receive the highest payments out of the 50-70% repayment from the reduced payment (Medicare Learning Network, n.d.). SNFs with ranked performance scores in the lowest 40th percentile receive payments that are less than what they would normally have received outside of the SNF VBP (Medicare Learning Network, n.d.). Ultimately, the purpose of the SNF VBP is to hold SNFs accountable and to incentivize them to prevent rehospitalizations, thus lowering costs to CMS and improving overall quality of care (Smith et al., 2015).

As of the first fiscal year of implementation of the SNF VBP (October 2018 through September 2019), 72% (10,976) of SNFs were penalized, 26% received bonuses (3,983), and

1.6% (242) had no adjusted payment (Rau, 2018). The majority of SNFs that received a penalty for their 30-day rehospitalizations were for-profit facilities compared to non-profit and government-owned facilities (Rau, 2018).

SNF Quality Reporting Program. In addition to SNF-specific efforts under PAMA to curb rehospitalizations, the IMPACT Act requires all SNFs to participate in a SNF Quality Reporting Program. The aim of the SNF Quality Reporting Program is to use standardized longitudinal data to inform SNFs and CMS of their quality of care and to facilitate future coordination of care and better health outcomes in SNFs (CMS, 2016g). Currently, all SNFs are required to submit MDS 3.0 data to CMS, which reports various measures, including two items that will be used for the SNF Quality Reporting Program: the percent of long-term care patients who experience one or more falls with a major injury and the percent of patients (short term) with pressure ulcers (CMS, 2016f). Under the SNF Quality Reporting Program, SNFs are also required to submit an additional indicator under the MDS 3.0, which measures changes in functional status (e.g. self-care and mobility) of long-term care patients admitted to the hospital both at admission and discharge (CMS, 2016f). Additional data for the SNF QRP comes from the Medicare FFS claims data regarding the percent of short-term patients discharged to the community, potentially avoidable rehospitalizations 30-day post-SNF discharge and Medicare spending per beneficiary of post-acute SNF care (CMS, 2016f). As of October 2019, all new data under the SNF Quality Reporting Program is now publicly available on CMS' Nursing Home Compare website.

Quality Assurance and Performance Improvement Programs. Along with the reporting of specific quality measures under the SNF Quality Reporting Program to CMS,

Section 6102(c) of the ACA requires that all SNFs establish Quality Assurance and Performance Improvement (QAPI) programs. The aim of QAPIs is to do just what the name indicates – ensure that SNFs meet quality standards and also that they are continuously examining ways to improve care (CMS, n.d.c.). To achieve these goals, SNFs are encouraged through their QAPI to use data that they already collect to identify deficiencies as well as to find areas for improvement or innovation (CMS, n.d.c.).

Research and initiatives aimed at preventing rehospitalizations

Curtailing the rates of potentially preventable rehospitalizations is not only the focus of policy efforts, but is also the focus of researchers and insurers. In particular, heart failure care has become a recent focus of research aimed at preventing rehospitalizations because, if managed correctly, heart failure rehospitalizations can be avoided. However, the literature surrounding rehospitalizations of patients with heart failure specifically from SNFs is limited. Therefore, the next few paragraphs will outline heart failure research aimed at preventing rehospitalizations of patients with heart failure both from SNF and elsewhere. In addition, this section will describe other research and models aimed at preventing rehospitalizations in general. Lastly, this section will discuss MA initiatives aimed at incentivizing providers to prevent all-cause rehospitalizations.

Research has demonstrated that rehospitalizations of patients with heart failure can be reduced both from SNFs and other settings. One of the few SNF-focused heart failure rehospitalization prevention studies was conducted by Boxer and colleagues (in press). The cluster-randomized controlled trial sought to determine if a nurse-driven heart failure disease management (HF-DMP) intervention for patients with heart failure in SNFs could reduce

poor health outcomes consisting of all-case hospitalizations, emergency room visits, and mortality within 60 days of SNF admission (Boxer et al., in press). Patients were randomized to the HF-DMP versus those who received usual care (see Chapter 4 for more detail about the clinical trial). Results indicate that HF-DMP patients had a lower 60 day rehospitalization rate (0.43 vs. 0.54, $p=0.04$) and a lower mortality rate (5.2 vs. 10.8, $p<0.001$). Patients enrolled in the HF-DMP also reported an increase in their overall quality of life when comparing their baseline Kansas City Cardiomyopathy Questionnaire (KCCQ) and 60-day follow-up summary scores (14.2 vs. 8.52, $p=0.05$) (Boxer et al., in press).

Another study by Jacobs (2011) evaluated a specific heart failure intervention at an urban Midwestern medical center and their coordination efforts with the local SNFs to prevent rehospitalizations. Nurse case managers of a specific hospital were tasked with making follow-up calls and coordinating care with the SNF nursing staff within 48 hours of hospital discharge (Jacobs, 2011). The calls assessed whether patients with heart failure were receiving key heart failure care, including being weighed daily; primary care physician contacts if the patient has gained more than three pounds in one day or five pounds in one week; a low salt diet order (2 grams); an order for an appropriate diuretic; and appointments with the patient's doctor within three to five days of SNF discharge (Jacobs, 2011). In addition, communication between the hospital and the SNF allowed for vital clarification of discharge orders (Jacobs, 2011). The hospital studied started out with a 30% rehospitalization rate, but after implementation of the new nurse-directed protocol changes the rate was reduced to 11.32% (Jacobs, 2011).

In a statement from the American Heart Association and the Heart Failure Society of America, Jurgens and colleagues (2015a) made recommendations for the appropriate care of patients with heart failure in SNFs to avoid rehospitalizations. They recommended that all SNFs should identify their patients with heart failure and categorize them as either HFpEF or HFrEF based upon the patient's ejection fraction, and implement sodium restricted diets (based upon individual needs). They also recommended that SNFs be patient-centered with the focus of individualized care decided upon by a health care team familiar with heart failure care, in consultation with the patient and their family. Furthermore, they recommended that SNFs have a knowledgeable staff to monitor signs and symptoms of volume overload; and establish care goals with patients and their families in case of the need to rehospitalize.

Later work by Orr and colleagues (2016) echoed similar recommendations with additional suggestions related to SNF characteristics. They recommended that patients with heart failure carefully select SNFs that have high quality ratings, are smaller in size, are based within a hospital, and are nonprofit (Orr et al., 2016). Lastly, recommendations from the Society for Post-Acute and Long-term Care Medicine related to heart failure care in SNFs echo similar points, but also endorse speaking with patients with heart failure about palliative care and advance care planning (Nazir & Smucker, 2015).

Other research has demonstrated that the strategies described by Jacobs (2011), Jurgens et al. (2015a) and Orr et al. (2016), in addition to other mechanisms, can prevent rehospitalizations of patients with heart failure across a variety of settings. Effective strategies include follow-up phone calls, telemonitoring and visits to patients, arranging for

intensive home health immediately following hospital discharge, medication management, patient self-care management and training, and multidisciplinary team management (primarily at home) (Akosah, Shaper, Havlik, Barnhart & Devine, 2002; Benatar, Bondmass, Ghitelman, & Avitall, 2003; Boutwell & Hwu, 2009; Chaundhy et al., 2007; Coleman, Parry, Chalmers & Min, 2006; Coleman et al., 2004; Creason, 2001; Dunagan et al., 2005; GESICA Investigators, 2005; Gorski & Johnson, 2003; Holland et al., 2005; Kay et al., 2006; Koelling, Johnson, Cody & Aaronson, 2005; Kornowski et al., 1995; Krumholz et al., 2002; McCalister, Lawson, & Armstrong, 2001; McCalister, Stewart, Ferrua & McMurray, 2004; Naylor et al., 2004; Pearson et al., 2006; Riegel et al., 2002; Rogers, Perlic & Madigan, 2007; Slater, Phillips, & Woodard, 2008; Stewart, Pearson & Horowitz, 1998). Still other research and models have been developed to prevent rehospitalizations - all employing similar mechanisms, but focusing on all-cause prevention of rehospitalizations. The models include Project RED, the Transitional Care Model, the Care Transitions Program, the Commonwealth Care Alliance Brightwood Clinic, and INTERACT, and the HOSPITAL Score (Berkowitz et al., 2013; Boutwell, Griffin, Hwu, & Shannon, 2009; Kim, Kou, Messinger-Rapport, & Rothberge, 2016; Naylor et al., 1999; Ouslander et al., 2012; Project RED, 2014). All of these studies demonstrate that rehospitalizations can be avoided, given the proper care coordination between hospital and SNF as well as the proper heart-failure-directed care in SNFs and other settings.

Several MA plans have created their own initiatives aimed at preventing rehospitalizations and in general, have found much success, according to research conducted by the managed care plans' trade association, AHIP (AHIP, 2008; AHIP, 2010a). Through

financial incentives in the form of up-front stipends and bonuses to providers, some MA plans have encouraged their providers to offer better care coordination (AHIP, 2008). Similar to the models and mechanisms previously discussed, many MA plans are developing systems where one contact (a nurse, physician or other health care provider) is responsible for coordinating all care for patients, including discharge planning, health maintenance education, medication reconciliation, and coordinating follow-up physician visits (AHIP, 2008; AHIP, 2010a). Through the coordination efforts of a number of providers, some of the MA plans' initiatives have seen reduced rehospitalization rates as well as improved health outcomes (AHIP, 2008; AHIP, 2010a).

Conclusion

In summary, heart failure is one of the leading causes of rehospitalizations for patients from SNFs. Rehospitalizations are costly to Medicare, have adverse health effects for patients and are a marker of poor quality care. Many factors have been found to influence patients' risk of being rehospitalized, including poor coordination between hospital and SNF, SNF characteristics and staffing; and a general lack of understanding of how to care for patients with heart failure. However, few studies specifically examine how the type of insurance a SNF patient carries influences their risk of rehospitalization, although research has found that MA plans perform better at preventing rehospitalizations as compared to FFS. Efforts to reduce rehospitalizations have been made through public policies, models supported by research, and initiatives by MA plans.

This review has identified both the techniques that managed care plans use to improve outcomes generally and the mechanisms that appear to be effective in reducing

rehospitalizations in both managed care and other contexts. In addition, specific quality improvement efforts focused on patients with heart failure have been discussed. It seems likely that the mechanisms identified will apply to the care of patients with heart failure in SNFs and their subsequent risk of rehospitalizations will differ between patients enrolled in MA plans and those enrolled in FFS Medicare.

CHAPTER 3

CONCEPTUAL FRAMEWORK

The purpose of this research is to determine if the type of insurance (MA v. FFS) influences the risk of rehospitalization for patients with heart failure in SNF. A review of the literature finds mixed results regarding the influence of insurance type on risk of rehospitalization. Much of the literature points to FFS Medicare beneficiaries being at a greater risk of rehospitalizations than MA members (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). However, some research shows the opposite, with MA members at a greater risk than FFS Medicare beneficiaries (Experton et al., 1999; Friedman et al., 2012), and other research finds varying effects of risk of rehospitalization between FFS and MA (Oh, 2017; Raetzman et al., 2015; Smith et al., 2005). This chapter proposes a conceptual framework that helps explain why insurance type might influence rehospitalization rates. Specifically, the conceptual model describes interdependent relationships among key actors—CMS, MA plans, SNFs, and patients—in the provision of SNF care to Medicare patients. Because of asymmetries in power and information, it is posited that the principals in these relationships use various mechanisms to monitor and incentivize the behavior of the agents to act in their interests. Theoretical

frameworks used to inform the development of this conceptual model include Resource Dependence Theory (Pfeffer & Salancik, 1978) and Principal-Agent Theory (Jensen & Meckling, 1976; Mitnick, 2006; Ross, 1973).

This chapter begins by describing Resource Dependence Theory and Principal-Agent Theory. Each theory is then applied to form the conceptual framework (Figure 3.1) used to describe how the type of Medicare coverage – FFS versus MA – may influence the risk of rehospitalization of SNF patients with heart failure. Hypotheses are developed and informed by the conceptual model, theory, and the empirical literature.

Resource Dependence Theory

Resource Dependence Theory (RDT) describes how external environments influence organizations. RDT focuses specifically on how the need for resources - financial, physical and informational - influences organizational behavior (Pfeffer et al., 1978). RDT was first developed by Pfeffer and Salancik (1978) to describe the external control of organizations (Scott & Davis, 2007). Prior to Pfeffer and Salancik's (1978) RDT, organization theory was grounded in the classic bureaucratic approach of Max Weber (1946), which focused on the roles individuals within organizations assume in organizational operations (Scott et al., 2007). Later work goes beyond this exclusive focus on internal structures and behavior to look at the ways in which organizations interact with other organizations within their environments (Cyert & March, 1963; March & Simon, 1959). Consistent with this development, Pfeffer and Salancik (1978) sought to explain how organizations adapt by forming inter-organizational relationships in the competition for scarce resources. They developed RDT to describe how organizations function in light of their dependence on

financial, physical and informational resources from outside organizations. The theory's main argument is that organizations operate under conditions of uncertainty and competition and therefore, must form interdependent relationships to secure valuable resources.

RDT posits that no organization can be truly independent and that all organizations are, to some extent, shaped by interdependencies within the environments within which they function. The level of interdependence between organizations can increase or decrease depending on the availability of needed resources (Pfeffer et al., 1978). The greater the availability of needed resources, the less need for interdependence. However, when needed resources are scarce and an organization faces uncertainty and competition in obtaining those resources, interdependence increases.

Rational adaptation to the changing environment is a key pillar of RDT (Zinn, Weech & Brannon, 1998). On the one hand, some organizations are able to form symbiotic relationships where there is a shared dependence in which some organizations have resources that the others may need and vice versa. On the other hand, interdependence among organizations is not always symbiotic. In some circumstances, the relationship can be asymmetric, when some organizations in possession of resources have power over other organizations in need of those resources (Pfeffer et al., 1978). Organizations that maintain control over resources often use that power to make demands that other organizations must meet to acquire the resources in their possession, such as allowing for oversight of operations and requiring competitive pricing (Hatch, 1997). The dependent organizations are willing to submit themselves to asymmetric relationships such as this to the extent that doing so helps

them to maintain stability and survive under conditions of resource scarcity, uncertainty and competition (Pfeffer & Salancik, 1978).

The RDT framework is widely used for studying organizational interdependencies and behavior in the health sector (Yeager et al., 2014). Specific settings include hospitals, hospice agencies, physician-based medical practices, nursing homes, and home health agencies (Balotsky, 2005; Banaszak-Holl, Zinn & Mor, 1996; Dansky, Milliron, & Gamm, 1996; Hsieh, Clement, & Bazzoli, 2010; Kazley & Ozcan, 2007; Lindley et al., 2013; Menachemi, Mazurenko, Kazley, Diana & Ford, 2012; Menachemi, Shin, Ford & Yu, 2011; Yeager et al., 2014; Zin, Proenca, & Rosko, 1997). RDT has also been used to understand the relationship between SNFs and managed care organizations. Zinn, Mor, Castle, Intrator and Brannon (1999), for example, specifically looked at environmental and organizational factors that influence a SNF's propensity to contract with managed care insurance companies. Zinn and colleagues (1999) found that in the highly competitive SNF marketplace, SNFs contract with and form interdependent relationships with managed care companies to ensure that needed resources are available. SNFs must meet the specific expectations of managed care organizations if those organizations are going to contract with them and provide them with patient referrals. Results from Zinn et al.'s (1999) research revealed that SNFs that were able to provide intravenous therapy, had more RN or physical therapist staffing hours, operated within a chain affiliation and had for-profit status were more likely to participate in a managed care plan than their counterparts (Zinn et al., 1999). These characteristics demonstrate to managed care organizations that SNFs can provide high quality, efficient care to their patients – therefore securing the contract and referral basis from those organizations.

Further research has applied RDT to the SNF setting by examining SNF adoption of quality improvement and specialized units in an effort to preserve needed resources in light of competitive pressures and environmental changes emanating from other organizations within the environment. Zinn, Weech and Brannon (1998) applied RDT to SNFs' adoption of total quality management (TQM) (i.e. continuous quality improvement). Findings indicated that SNFs were much more likely to adopt TQM if they perceived high levels of competition from other SNFs in the area, if the SNFs operated in an area with a higher proportion of Medicare hospital discharges, and if their overall census was primarily comprised Medicare beneficiaries (Zinn et al., 1998). It was hypothesized that SNFs must maintain a competitive edge in the marketplace through quality improvement to ensure referrals from hospitals.

Other research has examined the propensity of SNFs to establish specific units (e.g. skilled, Alzheimer's) in order to adapt to competitive marketplaces and acquire needed resources (Banaszak-Holl, Zinn & Mor, 1996; Weech-Maldonado, Qaseem and Mkanta, 2009). Banaszak-Holl and colleagues (1996) used RDT as a conceptual framework to explore SNFs' propensity to establish Alzheimer's disease, subacute, and other specialized units of care. They found that SNFs began to include specialized units to remain competitive in the marketplace. However, the type of specialized unit created was dependent on the environment in which the SNF operated. Specifically, SNFs located in markets with more hospitals and Medicare HMO beneficiaries were more likely to operate a skilled subacute unit, while SNFs with a smaller Medicare census were more likely to create Alzheimer's units (Banaszak-Holl et al., 1996). In part, the former reflected greater dependence on post-acute care patients paid for by Medicare, whereas the latter reflected greater dependence on

long-term care patients paid for by other, non-Medicare revenue sources (i.e., private pay, Medicaid). Further research by Weech-Maldonado and colleagues (2009) applied RDT to SNFs offering acute care rehabilitation. They found, using longitudinal data from over thirteen thousand SNFs throughout the US, that many SNFs left the skilled care market following the implementation of Medicare's new PPS reimbursement system in 1997, which changed the payment system from cost-based retrospective FFS payments to prospectively-determined per diem rates (Weech-Maldonado et al., 2009; Zinn et al., 2003). Specifically, they found SNFs with a greater proportion of Medicare patients likely to leave the subacute marketplace following the change in pay to PPS (Weech-Maldonado et al., 2009). However, the Medicare Advantage penetration in the marketplace was positively associated with SNFs entering the skilled care market to remain competitive (Weech-Maldonado et al., 2009). In addition, larger, for-profit SNFs were more likely to enter the subacute market (Weech-Maldonado et al., 2009).

Principal-Agent Theory

Principal-Agent Theory, also referred to as the Agency Problem, evolved from the fields of economics and political science as a way to describe interactions between two parties –principals and agents. When two parties interact, one, designated as the agent, acts on behalf of the other, the principal (Ross, 1973). The central problem that Principal-Agent Theory describes is that the principal never truly knows if the agent's goals align with their goals and, as such, if the agent is acting in the principal's best interests. This uncertainty is particularly acute when principals commission agents because of their expertise (e.g. paying a mechanic to fix a car). Under such circumstances, agents possess knowledge that principals

do not, which results in information asymmetry. Asymmetric information creates the potential for moral hazard, in which agents act according to their own interests instead of the interests of the principals for whom they are supposed to be acting. The potential for moral hazard leads principals to institute mechanisms to incentivize and monitor agents' behavior to better ensure that agents' interests align with their own.

Principal-Agent Theory initially developed as an adaptation to economists' risk-sharing literature to frame how interacting parties in a transaction can have different levels of acceptable risk (Arrow, 1971; Eisenhardt, 1989; Wilson, 1968). In the early 1970s, its scope expanded to describe the agency problems that occur when parties to a transaction have different interests and goals, and strategies are put into place to address the potential for moral hazard (Eisenhardt, 1989; Jensen et al., 1976; Mitnick, 2006; Ross, 1973). Principal-Agent Theory applies to many types of relationships and interactions. Eisenhardt (1989) described several examples of the theory, from the macro-level relationship of policy regulations to the micro level of individual interactions (e.g., dyads). Other research used the theory to explain key principal-agent relationships in the health sector including that of the patient-physician, patient-insurance company, insurance company-physician, and health care regulators (e.g. CMS)-insurance companies (Buchanan, 1988; Dranove & White, 1987; Frandsen, Powell, & Rebitzer, 2019; Nguyen, 2011; Ryan, 1994; Schneider & Mathios, 2006; Sekwat, 2000). In addition to the principal-agent relationships themselves, the literature has also examined how payment type (e.g. FFS versus capitated) influences those relationships (Dranove et al., 1987; Frandsen et al., 2019; Nguyen, 2011; Schneider et al., 2006).

Principal-Agent Theory subsequently expanded to describe multiple agent and principal arrangements beyond the previous application to dyads. Moe (1984) first introduced the concept of multiple principal and agent arrangements in the context of democratic politics. He described how politics is composed of multiple chains of principal-agent relationships, with some actors serving in dual roles as principal and agent and some agents being accountable to multiple principals. According to Moe, for example, citizens serve as principals and elected officials as agents who, in turn, serve as principals to government workers running the nation's bureaucracies. As agents, however, bureaucrats are accountable to multiple principals in the executive and legislative branches, with predictable consequences for agency behavior. These include: Congress controls the budget and can reward or penalize those bureaucrats who they deem to have performed well or poorly; Congress has the authority to use oversight over bureaucrats to hold them accountable; and bureaucrats must submit to the president's interests and goals to help maintain their own political appointments (Moe, 1986; Weingast & Moran, 1983).

Later research extended the concept of dual principals to the health sector, describing how a physician, as an agent, is dually responsible to both downstream principals (i.e., the patients) and upstream principals (i.e., the patient's health insurer). (Angell, 1993; Langer, Schroder-Back, Brink & Eurich, 2004; Langer, Schroder-Back, Brink & Eurich, 2008; Shortell, Waters, Clarke & Budetti, 1998). Prior to the advent of health insurance, physicians focused solely on the provision of medical care to their patients, who paid directly for each service rendered (Langer et al., 2004). Physicians used their knowledge and skills to act as the agent in their relationship with the patient (i.e., the principal). With the expansion of FFS

health insurance, physicians began to find themselves having to play the dual role of agent to insurance companies and agent to their patients. However, under FFS, physicians were paid per service and had little oversight or incentives to keep costs down. With the expansion of health insurance to include managed care models (e.g. HMOs, PPOs and POSs), physicians began to be constrained in the care they could provide to individuals based on mechanisms set by insurance companies, including cost limitations; which patients they could care for (i.e. network limitations); and utilization management (Langer et al., 2004). The introduction of managed care to the patient-physician model also places another variable in the mix – the physicians’ payment method (e.g. FFS versus salary) (Langer et al., 2004). Insurance companies use various payment methods to try to control the costs and care that physicians (the agents) provide to patients. Physicians paid on a FFS basis are more likely to provide too much care and treatments to patients because they are paid per service with few incentives to control costs (Langer et al., 2004). To avoid the problems associated with FFS payments, many managed care plans try to control costs by paying physicians on a salaried or capitated basis, wherein the provider is paid a set amount regardless of the amount of care they provide. To ensure better outcomes, insurance companies can also use financial penalties for poor outcomes and bonuses for better health outcomes to further influence care.

Green (2012) undertook an experiment to examine how a physician, as an agent, is dually responsible to both downstream principals (i.e., the patients) and upstream principals (i.e., patients’ health insurers). Different payment structures were given to each participant—salary, flat rate (capitation), and piece rate (FFS) reimbursement, and each participant was asked to complete tasks that affected the downstream principal. The study found that agents

paid on a salaried or flat rate (capitated) basis provided better quality care to downstream principals and saved money for upstream principals compared to agents paid on a piece rate (FFS) basis. Green theorized that this was the case because agents paid on a salaried or flat rate basis were more focused on their task rather than on maximizing their income. By contrast, agents who were paid using a piece rate payment had the poorest outcomes for both upstream and downstream principals because they had few incentives to carefully consider the cost and benefits of the tasks undertaken and to keep costs down (Green, 2012).

Application of Resource Dependency Theory and Principal-Agent Theory to rehospitalization from a SNF

This section applies RDT and Principal-Agent Theory to develop a conceptual model that describes the potential influence of Medicare insurance type—MA v. FFS--on the risk of rehospitalization from a SNF. Each theory provides its own perspective on the relationships between the major actors involved—CMS, MA plans, SNFs and patients—in the SNF environment. Specifically, RDT focuses on the asymmetry of power over resources and the Principal-Agent Theory focuses on the asymmetry of information. Other aspects of the theories overlap, thereby reinforcing other dimensions of the model devised.

Resource Dependence Theory's focus is appropriate to describe the environment that SNFs operate within, which is full of resource competition and uncertainty. In general, the post-acute care market is highly competitive, with SNFs competing for patients not only amongst themselves, but also with home health agencies and long-term acute care (LTACs) facilities (also referred to as long-term care hospitals (LTCHs) and inpatient rehabilitation facilities (IRFs)). Importantly, SNFs can choose to offer long-term care only, skilled services

only or a combination of both. In general, SNFs' choices in this regard depends on the level of competition within their environment and the makeup of the population served. However, Medicare Advantage plan penetration into the market makes a difference as well. Banaszak-Holl et al. (1996), for example, found that nursing facilities that operate within a market with more Medicare HMO enrollees and more hospitals relative to the supply of nursing homes in the area were more likely to operate skilled units only, or skilled units in addition to long-term care, to maintain competitiveness.

In addition to affecting the types of services offered, the competitiveness of the SNF marketplace has been shown to influence SNFs' impetus for improving quality of care (Grabowski & Town, 2011). After quality indicators were added to CMS' Nursing Home Compare website in 2002, Grabowski and Town (2011) examined whether or not having publicly reported quality data influences SNFs' behaviors. They found that in order to remain competitive, SNFs with a smaller share of the market were more inclined to improve their quality of care following implementation of Nursing Home Compare compared to SNFs in the same market who had a greater market share (Grabowski et al., 2011).

Resource Dependence Theory's assumption that organizations need to maintain a steady flow of business— in this case, patients and revenue – to maintain stability and survival means that CMS, as the insuring entity, is in a powerful position to influence SNF behavior. SNFs that seek to provide skilled care to patients must participate in the Medicare program administered and overseen by CMS. SNFs typically provide long-term care, which is covered and reimbursed by Medicaid or patients who pay privately. However, payments to SNFs for long-term care under Medicaid tend to be much less lucrative than skilled services paid for

under Medicare – thus, providing an incentive for SNFs to offer skilled care because of the higher reimbursement rate (Thomas, 2015; Zuckerman, Skopec & McCormack, 2014). In addition, skilled services offer SNFs the opportunity to have a steady influx of patients who are treated and then discharged, allowing for a continuous stream of income. Therefore, many SNFs seek to provide skilled care to Medicare beneficiaries to ensure resources – from higher levels of reimbursement obtained for care for the steady stream of Medicare beneficiaries who seek post-acute care and rehabilitation following hospitalization.

However, to participate in the Medicare program, SNFs must undergo survey and certification; they must also report certain data to CMS to remain eligible to serve Medicare beneficiaries. The Code for Federal Regulations under CMS (42 CFR Part 483, Subpart B) outlines the requirements for SNF certification (CMS, 2017). All SNFs must be certified by the State in which they reside and are subject to unannounced Life Safety Code and Standard Surveys (both the Traditional Survey and the Quality Indicator Survey) (CMS, 2017). As part of the state surveys, SNFs must demonstrate compliance with a variety of federal standards (i.e. quality of life requirements, adequately assessing patients' needs, devising appropriate care plans, providing quality of care in terms of medical, rehabilitative and drug therapies, providing adequate nutritional and social services, and, meeting standard health and safety requirements) (CMS, 2016). Upon demonstration of compliance, SNFs receive certification and are eligible to serve Medicare beneficiaries (CMS, 2017). Survey results are also vital to the reputation of SNFs because all survey data (including deficiencies and violations) are made public on CMS' Nursing Home Compare website. In addition to state surveys, SNFs must also report their own data to CMS using the MDS and SNF QRP, as previously

described. All of these CMS requirements for SNFs to participate in the Medicare program place CMS in a powerful position over SNFs.

In the highly competitive post-acute care market, Medicare-certified SNFs often seek contracts with MA plans to ensure the provision of needed resources – patients and revenue. The SNF environment is competitive and the referral of patients from hospitals is not always certain. FFS Medicare beneficiaries are able to receive post-acute care from any SNF that is Medicare certified. One way of guaranteeing business to increase their competitiveness and to maintain their censuses is for SNFs to work with MA plans. Entering into contracts with MA plans enables SNFs to receive and care for beneficiaries within those plans. In so doing, MA plan contracts give SNFs the opportunity to increase their patient volume and revenue in addition to what they obtain via FFS Medicare.

SNF reliance on resources—patient referrals and revenue—from MA plans gives those plans significant influence over SNFs’ behavior. As noted, RDT assumes that power asymmetries in inter-organizational relationships enable some organizations to make demands in return for the resources they provide to other organizations that depend on them (Pfeffer et al., 1978). Because SNFs are dependent on MA plans for needed resources, MA plans have power over SNFs when negotiating contracts and determining payment (Gayner et al., 2001). MA plans use that power to impose mechanisms—financial incentives, case management, utilization review—aimed at restraining spending and improving quality of care, including rehospitalization. The efficacy of these mechanisms is reflected, in part, in the bulk of existing research suggesting that MA enrollees are at lower risk for rehospitalizations than Medicare beneficiaries enrolled in FFS Medicare (AHIP, 2009a, 2009b, 2009c, 2010b;

2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Li et al., 2018; Lemieux et al., 2012; Zeng et al., 2006).

Principal-Agent Theory describes how agents typically have power and influence over principals because they possess information and knowledge that the principal does not possess (Jensen et al., 1976; Mitnick, 2006; Ross, 1973). The asymmetric information that the agent holds leaves the principal unsure of whether or not the agent is acting in their best interest (Jensen et al., 1976; Mitnick, 2006; Ross, 1973). In response, the principal may use incentives and mechanisms to try to ensure that the agent's behavior aligns with the interests of the principal (Jensen et al., 1976; Mitnick, 2006; Ross, 1973). In addition, Principal-Agent Theory describes how there can be multiple chains of principals and/or agents all acting in pursuit of their own best interests (Moe, 1984).

Within the SNF environment, multiple principal-agent chains characterize the relationship between SNFs, MA plans and CMS. Similar to the asymmetric relationship described in RDT theory, within the principal-agent relationship, MA plans (the principals) can use mechanisms such as financial incentives and utilization review to influence the behavior of SNFs (the agents) with whom they contract. This is also true of CMS (also a principal), which uses various policy tools to influence the behavior of SNFs and MA plans (both agents in relation to CMS).

MA plans (the principals) rely on SNFs (the agents) to provide quality and cost-effective care to their beneficiaries. However, MA plans can never be sure about the true quality and efficiency of the care provided to their beneficiaries because they lack the information that SNFs' possess when providing that care. Consequently, MA plans use a

variety of mechanisms to try to influence the behavior of SNFs to align with their goals of quality and cost-containment. One key mechanism is utilization review, which allows MA plans to have a say in the care provided to their beneficiaries and to help contain costs (Robinson, 2001). Utilization review is especially helpful when the payment from the MA plan to SNFs is FFS because it helps to ensure that the care provided is necessary and appropriate (Robinson, 2001). General payment structure and incentives also play an influential role in how MA plans try to influence the behavior of SNFs when meeting beneficiary needs. SNFs paid on a prepaid fixed or capitated basis have financial incentive to keep costs down so they do not incur expenses that exceed the capitated amount paid. In addition, MA plans offer bonuses or penalties to SNFs based on the quality of care provided as determined by outcomes such as rehospitalizations.

According to Principal-Agent Theory, the principal in one relationship can act as the agent in another relationship. Thus, MA plans serve as the principals in their relationships with SNFs, but as agents in their relationship with CMS. All MA plans must offer coverage equivalent to that provided by FFS Medicare. In turn, CMS pays MA plans capitated payments per beneficiary and assumes that MA plans will enroll beneficiaries regardless of utilization and health history and provide quality care to those they serve (Newhouse et al., 2014).

MA plans (as agents) seek to provide quality care to beneficiaries while also maximizing their profits. To maximize profits, MA plans are incentivized to select healthier beneficiaries (Hellinger et al., 2000; Landon et al., 2012a; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Rahman et al., 2015). CMS (the principal) uses policies (e.g.

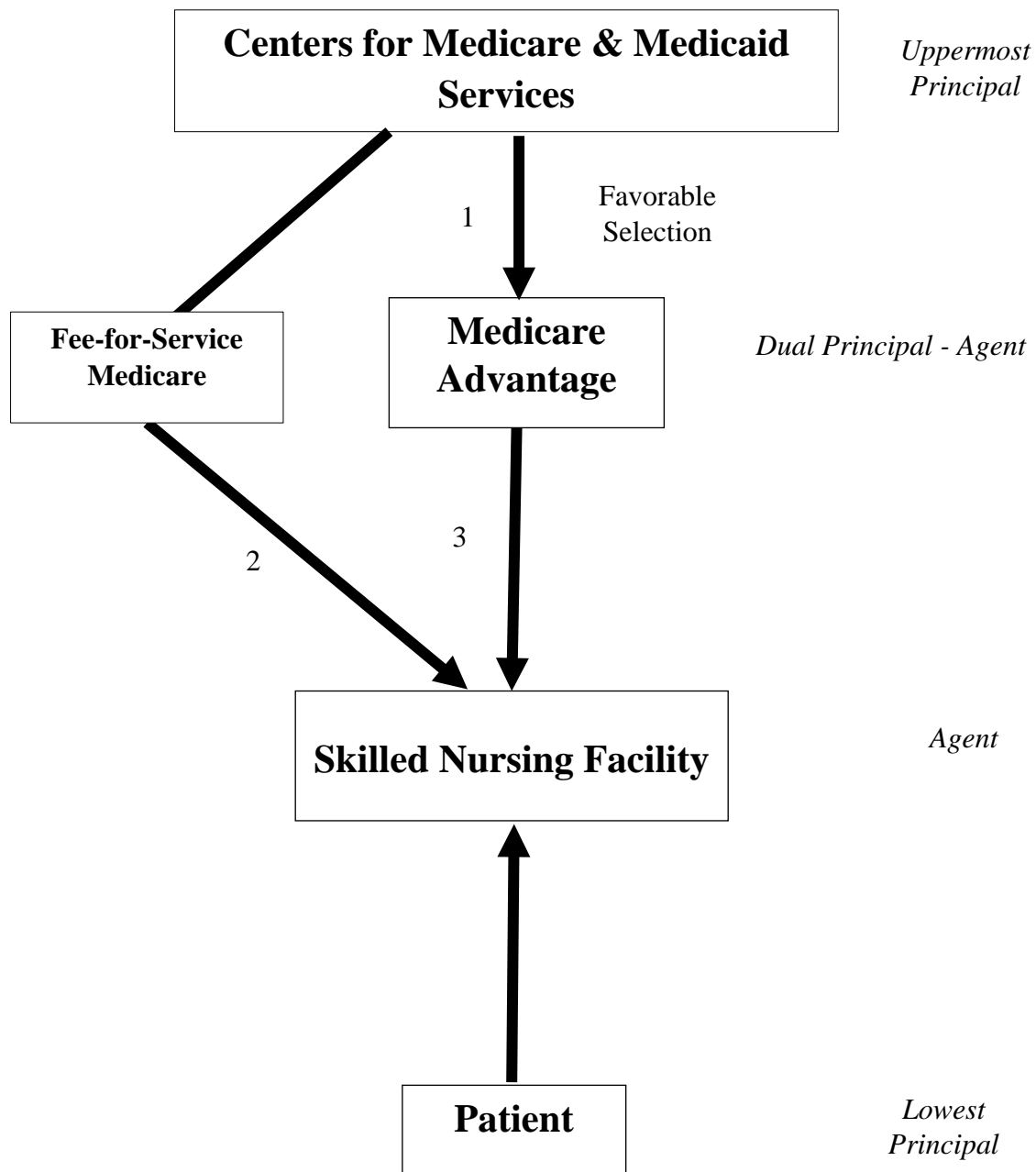
locking in Medicare beneficiaries into their plan selection for ten and a half months and the CMS Hierarchical Condition Categories (CMS-HCC) model under the BBA of 1997) to try to deter MA plans from biased selection, but these efforts have not been completely successful (McWilliams et al., 2012; Newhouse et al., 2014).^{3,4} Thus, research indicates that the problem of selection bias remains, despite the adoption of policies by CMS meant to deter MA plans from favorably selecting healthier beneficiaries; as such, MA members tend to be healthier, on average, than FFS beneficiaries (Elliott et al., 2011; Keenan, Elliott, Cleary, Zaslavsky and Landon, 2009). Implications of selection bias on the part of MA plans suggests that FFS Medicare beneficiaries are more likely than MA enrollees to need and use SNF care (Bentley & Breese, 2017). It also suggests that MA members who do use SNF services are comparatively healthier than their FFS counterparts and, as such, consume fewer resources. Similarly, it can be expected that healthier, on average, MA members will have fewer hospital readmissions than their FFS counterparts (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Li et al., 2018; Lemieux et al., 2012; Petterson et al., 2016; Zeng et al., 2006).

³ Beginning in 2006, Medicare beneficiaries who selected a MA plan could only switch back to FFS for the first 6 months of the year, but were locked-in for the last 6 months of the year. The locked-in time period was later changed to the last 9 months of the year in 2007 and then to the last 10 and a half months of the year in 2011 (Newhouse et al., 2014).

⁴ The CMS-HCC model was developed to make prospective risk-adjusted Medicare payments to MA plans for their expected costs. The CMS-HCC model uses two steps to calculate the expected costs. The first step generates a risk score based on the beneficiary's previous 12 months of medical history or their demographic and disability status if they have no medical history in the previous 12 months (CMS, 2017b). The second step uses an individual's risk score and whether or not they have ESRD to calculate expected beneficiary costs of which are used to determine payments to MA plans (CMS, 2017b).

The last link in the principal-agent chain is that of CMS (the principal) and SNFs (the agents). In this relationship, CMS relies upon SNFs to provide Medicare beneficiaries with high quality, cost-effective care while SNFs rely upon CMS for patients and reimbursement for FFS beneficiaries. CMS cannot truly know what is going on in the SNFs on a day-to-day basis. Due to this asymmetric information, CMS uses a variety of mechanisms to try to influence the care provided by SNFs, including requiring certification, state surveys, and data reporting. Without complying with CMS' regulations, SNFs cannot participate in the Medicare program and provide skilled services to Medicare beneficiaries. In addition, SNFs must demonstrate to CMS that any care provided to FFS beneficiaries during a SNF stay is necessary and cost-effective to receive reimbursement. The various mechanisms used by CMS influence the quality and costs of care provided to beneficiaries while in SNF. In addition, SNFs are now facing financial penalties under the Protecting Access to Medicare Act (PAMA) for potentially avoidable rehospitalizations. It is expected that these penalties will spur SNFs to provide better care to beneficiaries with the aim of preventing potentially avoidable rehospitalizations.

Figure 3.1: Conceptual Framework



The conceptual model

The conceptual model (see Figure 3.1) shows how the type of insurance (FFS v. MA) that a patient with heart failure carries influences their risk of rehospitalization from a SNF. In doing so, it draws from RDT and Principal-Agent Theory to explain relationships among the key actors involved: CMS, MA plans and SNFs. The model depicts the chain of interlocking relationships at play in the provision of SNF care.

The overall model suggests several key, interdependent relationships as described by RDT. Each organization acts in its own self-interest by establishing relationships with other organizations to secure needed resources. The parties that hold the power and resources can impose their will on the parties that are dependent on them --CMS on SNFs and MA plans, and MA plans on SNFs. CMS is dependent on both MA plans and SNFs to serve Medicare beneficiaries – MA plans to provide coverage and SNFs to provide care. In turn, both MA plans and SNFs are dependent on CMS for payments – MA plans for capitated payments and SNFs for reimbursement for FFS beneficiaries. MA plans and SNFs also share in their own interdependent relationship. MA plans need SNFs to provide care for the Medicare beneficiaries who enroll in them; SNFs depend on MA plans to contract with them so that they may secure needed patients to fill their census and for revenue deriving from the skilled care provided.

A series of principal-agent relationships characterize the relationships among the actors (i.e., CMS, MA plans, SNFs and patients). The payment structures associated with the SNF environment are complicated and can best be described through a multiple chain

approach as described by Moe (1984) and later by Green's (2012) Dual Principal-Agent Theory framework.

First, CMS acts as the *uppermost principal* and the patient acts as the *lowest most principal*. CMS' role within the SNF environment is to provide regulatory oversight and payment to MA plans and SNFs for the provision of care. CMS hopes that both participating SNFs and MA plans act in CMS' and the Medicare program's best interests, especially the provision of high quality, cost effective care, but because of the information asymmetries described earlier CMS can never be sure that the behavior of MA plans and SNFs are consistent with these goals. SNF patients act as the lowest most principals in that they must rely on all of the aforementioned actors (CMS, MA plans and SNFs) to act in their best interests, but they can never be completely sure if that is the case, again, due to the information asymmetries involved. FFS and MA enrollees depend on CMS and MA plans, respectively, to pay for access to needed SNF services. Both FFS and MA enrollees depend on the SNFs for the actual care provided. Patients occupy an important position within the conceptual model, but will not be a key point in the discussion. Instead, the focus will be on the various relationships between the payers (CMS and MA plans) and SNFs: MA plans as the principals and SNFs as the agents, CMS as the principal and MA plans as the agents, and CMS as the principal and SNFs as the agents.

CMS as the principal and MA plans as the agents (Arrow #1, Figure 3.1). CMS' goal is to have MA plans provide quality care to Medicare beneficiaries who enroll in those plans. The goal of the MA plans is to make a profit off the capitated payments provided by CMS. CMS reimburses all MA plans for the care provided to MA members. MA plans must

be certified by CMS to provide care that includes the same (if not more) benefits as provided under FFS Medicare. All MA plans are paid by CMS on a capitated basis wherein they are reimbursed a set amount per enrollee per month (Langwell, 1990). While the capitated payments made by CMS to MA plans incentivize them to provide cost-effective care to their beneficiaries, they also create incentives for MA plans to preferentially serve healthier beneficiaries to keep costs down and save money. By attracting healthier beneficiaries, MA plans seek to ensure that actual costs will be less than their predicted costs and CMS reimbursement (Hellinger et al., 2000; McWilliams et al., 2012). Beyond paying MA plans for coverage of Medicare beneficiaries, CMS is not involved in the actual marketing and enrollment processes used by MA plans. Therefore, information asymmetry favors MA plans in their favorable selection of healthier beneficiaries. CMS has tried to deter MA plans from favorably selecting healthier beneficiaries through such initiatives as risk adjusting payments and locking enrollees in for the last 10 and a half months of the year (McWilliams et al., 2012; Newhouse et al., 2014; Pope et al., 2004). However, researchers continue to find favorable selection by MA plans (Landon et al., 2012a; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Rahman et al., 2015). Thus, it appears that, as a principal, CMS has yet to adopt mechanisms that fully address the information asymmetries that characterize the agency's relationship with the plans it contracts with under MA, at least where favorable selection is concerned.

CMS as the principal and SNFs as the agents (Arrow #2, Figure 3.1). In the relationship between CMS and SNFs, CMS wants SNFs to provide quality care to Medicare beneficiaries and SNFs want to remain Medicare-certified so they can stay in business. SNFs

are able to care for Medicare beneficiaries without much day-to-day oversight by CMS of the care provided. However, CMS has sought to mitigate the resulting information asymmetries, largely through regulation but increasingly through financial incentives. Specifically, SNFs are now encountering financial penalties under the Protecting Access to Medicare Act of 2014 SNF-VBP program for rehospitalizations of SNF patients within 30 days post-hospital discharge. However, before SNFs can even provide care to Medicare beneficiaries, they must meet strict rules and regulations to ensure that they are Medicare certifiable. Without Medicare certification, SNFs are not eligible to provide skilled care to Medicare beneficiaries. In addition, once certified, SNFs must demonstrate through periodic surveys that they continue to comply with pertinent rules and regulations. SNFs are also required to report data to CMS to help ensure quality of care and cost-effectiveness. Beginning in FY 2018, SNFs are now required to participate in the SNF Quality Reporting Program (under the IMPACT Act of 2014), which is aimed at standardizing longitudinal data to inform SNFs and CMS of their quality of care (CMS, 2016g). SNFs are penalized monetarily for not providing required quality data under the SNF Quality Reporting Program (CMS, 2016g).

MA plans as the principals and SNFs as the agents (Arrow #3, Figure 3.1). SNFs rely on MA plans for referrals and reimbursement for services provided. MA plans refer patients to contracted SNFs, paying those SNFs agreed upon rates in exchange for the care provided. MA plans, however, must rely on contracted SNFs to provide quality and cost-effective care to their enrollees, but can never be sure that the contracted SNFs are acting in their best interests due to information asymmetries. MA plans have thus established several mechanisms to better align SNFs' interests with their own. These include selective networks,

financial incentives, utilization review, and case/care management. MA plans know that SNFs need patient referrals to ensure income. Therefore, the use of exclusive networks provides an incentive to SNFs to abide by MA plans' standards of care and policies toward containing costs (Gayner et al., 2001; Glied, 1999). Should they fail to meet those demands, SNFs risk losing their MA contracts, thereby leading to a loss of referrals and income. MA plans also create financial incentives that better align SNFs interests with their own. The particular type of incentive varies depending on how the SNFs are paid. For example, SNFs that are paid on a FFS basis may encounter penalties for poor quality and bonuses for meeting performance targets. By contrast, SNFs paid on a capitated basis must ensure that their costs do not exceed that of the capitated payment, though they too may receive bonuses when quality targets are met (Glied, 1999; Gold, 1999). MA plans also subject the SNFs within their networks to utilization review to better ensure that patients receive appropriate care in the most appropriate setting with the goal of reducing unnecessary costs (Glied, 1999; Gray et al., 1989; Spector, 2004). Similarly, case management by MA plans is a mechanism used to monitor SNF patients' progress throughout their stay and to ensure the appropriateness of care received (Gray et al., 1989).

The incorporation of RDT and Principal-Agent Theory into one conceptual framework has the potential to contribute to future theoretical literature. To the best of my knowledge, these two theories have not been used simultaneously to examine this topic. Lastly, the conceptual framework also helped to shape the proposed hypotheses that will be discussed in the following section.

Hypotheses

In this section, I describe the research questions and associated hypotheses that inform my examination of the relationship between insurance type and risk of rehospitalization. The three primary research questions that inform this research include:

(1) Do the personal characteristics of SNF patients with heart failure with MA coverage differ from SNF patients with heart failure enrolled in FFS Medicare?

(2) Do SNF patients with heart failure with MA coverage have lower rates of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare?

(3) Do SNF patients with heart failure with MA coverage have a lower likelihood of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare, after adjusting for individual-level and facility-level factors?

Hypotheses are developed and justified in light of these research questions, the empirical literature, and the conceptual model. The major hypotheses associated with each research question are discussed in turn.

How do SNF patients with heart failure with MA coverage differ from SNF patients with heart failure enrolled in FFS Medicare? MA plan enrollees vary from FFS Medicare enrollees on several key demographic and health-related measures. Patients who enroll in FFS tend to be younger, non-Hispanic white, better educated, and higher income than their MA counterparts (AHIP, 2015; Elliott et al., 2011; Keenan et al., 2009; Mirel et al.,

2012).⁵ FFS beneficiaries, however, are more likely to report that their overall health is poorer than MA members (Elliot et al., 2011; Keenan et al., 2009). This suggests that MA plans engage in favorable selection of healthier beneficiaries to reduce health care utilization and save costs. CMS (as the principal in its relationship with MA plans) expects plans to enroll Medicare beneficiaries independent of health status. The agency, however, is unable to truly know the extent to which MA plans engage in behaviors that contravene this expectation. The asymmetric information that MA plans hold over CMS, in terms of their beneficiary enrollment tactics, helps them to act in their own best interests by selecting healthier beneficiaries to reap greater cost-savings and monetary rewards despite strategies CMS has put into place to mitigate this behavior. Based on the aforementioned discussion, it is posited that:

Hypothesis #1: In light of potential favorable selection, FFS beneficiaries will be in poorer health and use more health services, on average, than MA enrollees, all else being equal.

Do SNF patients with heart failure with MA coverage have lower rates of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare? As principals in the MA plan-SNF relationship, MA plans rely on SNFs to provide appropriate, quality and cost-effective care to their enrollees. As agents in this relationship, SNFs need MA plans to supply them with referrals of patients to fill their censuses and to ensure a continuing flow of financial resources. Absent incentives and

⁵. Of note, income will not be included in this research because it is not a variable in the SNF Connect study.

monitoring, however, MA plans (the principals) are unable to ensure that the care provided to enrollees by contracted SNFs (the agents) is appropriate and in the MA plan's best interest in terms of cost-effectiveness and quality. Therefore, MA plans rely on various mechanisms—selective contracting, financial incentives, case management, utilization review—to try to influence the care provided by the SNFs with whom they contract. It is posited that this outside influence and oversight enables MA plans to influence SNFs to better manage the care provided to the plans' enrollees, thereby decreasing the likelihood of rehospitalization. This contrasts with the limited influence CMS exerts on the day-to-day care of beneficiaries enrolled in FFS Medicare (beyond the general oversight the agency provides to all SNFs and the incentives inherent within the prospective payment methodology used to reimburse facilities). That these additional mechanisms make a difference is suggested by the literature review which indicates that MA members have lower rates of rehospitalizations than do FFS beneficiaries (AHIP, 2009a, 2009b, 2009c, 2010b, 2010c; Anderson, 2009; Huckfeldt et al., 2017; Kumar et al., 2018; Li et al., 2018; Lemieux et al., 2012). Based on the aforementioned discussion, it is posited that:

Hypothesis #2: Rehospitalization rates from SNFs will be lower among Medicare beneficiaries enrolled in MA than those enrolled in FFS Medicare.

The empirical literature highlights several population differences between MA and FFS beneficiaries. These population differences – especially with respect to overall health and utilization – can influence the risk of rehospitalization. Therefore, it is important to control for beneficiary characteristics to determine whether or not differences in the likelihood of rehospitalization between MA and FFS beneficiaries stem from mechanisms

inherent in the plans themselves, as described above, or from favorable selection of healthier beneficiaries into MA (Elliott, Haviland, Orr, Hambarsoomian & Cleary, 2011; Hellinger et al., 2000; Landon et al., 2012a; MedPAC, 2012; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Newhouse et al., 2012; Rahman et al., 2015; Riley, 2012).

In addition to population differences between MA and FFS beneficiaries, the empirical literature also points to SNF characteristics associated with the provision of higher quality care that may influence a SNF patient's risk of rehospitalization. As previously described, survey deficiencies, ownership type, chain affiliation and size have been shown to influence a patient's risk of rehospitalization. In particular, the literature suggests that SNFs with the highest overall star ratings and health inspection rating from the Nursing Home Compare website had lower risks of rehospitalizations compared to SNFs with the lowest overall and health inspection ratings (Kimball, Nichols, Nunley, Vose, & Stambough, 2018; Neuman et al., 2014; Ogunneye et al., 2015; Pandolfi et al., 2017; Unroe et al., 2012). SNFs that are not-for-profit, not chain affiliated and have fewer beds have also been shown to have lower risks of rehospitalization compared to their SNF counterparts (Li et al., 2015; Neuman et al., 2014; Toles et al., 2014; Rahman, Foster, Grabowski, Zinn & Mor., 2013; Zimmerman et al., 2002). Lastly, SNFs that had higher staffing ratings (i.e. staffing hours by a registered nurse, licensed practical nurse and nurse aide per resident per day) had lower rates of rehospitalizations compared to SNFs with poorer staffing ratings (Intrator et al., 1999; Neuman et al., 2014; Pandolfi et al., 2017). These facility-level characteristics are important to control for in this research to determine if the risk of rehospitalization comes from the

plans themselves or from outside influences such as the SNF environment. Based on the aforementioned discussion, it is posited that:

Hypothesis #3: MA plan enrollees will have a lower likelihood of rehospitalization from SNF than Medicare FFS beneficiaries, after controlling for patient and SNF characteristics.

In conclusion, the aforementioned research questions and hypotheses aim to determine if the type of insurance (MA v. FFS) has an influence on the risk of rehospitalization for patients with heart failure in SNF. Comparing and controlling for beneficiaries' demographics, health status, utilization, and other characteristics aims to determine if MA plans engage in favorable selection and if that favorable selection accounts for differences in rehospitalization rates across MA and FFS Medicare beneficiaries. In addition, by accounting for potential confounding influences from the SNFs themselves, this research has the potential to identify whether it is the overall quality of care provided rather than insurance type that explains differences in the risk for rehospitalization by insurance type.

Conclusion

This conceptual framework informing this study derives from Resource Dependence Theory and Principal-Agent Theory (Pfeffer et al., 1978; Jensen et al., 1976; Mitnick, 2006; Ross, 1973). In particular, both theories were used to explain the multiple relationships and interactions between CMS, MA plans, SNFs and patients that influence the risk of rehospitalization. Because of asymmetries in power and information, it is posited that the

principals in these relationships use various mechanisms to monitor and incentivize the behavior of the agents to act in their interests.

Resource Dependence Theory highlights the competitive and uncertain environments within which SNFs operate (Pfeffer et al., 1978). It also highlights the strategies they pursue to obtain needed resources from the organizations on which they depend for survival (e.g. hospitals, MA plans). These strategies include opening skilled units and contracting with MA plans to ensure needed resources – patient referrals and revenue. Because SNFs are dependent on MA plans for referrals and income, MA plans have the power to negotiate contracts, determine payment and impose mechanisms on SNFs— financial incentives, case management and utilization management—to promote the efficient use of resources provided (Gayner et al., 2001).

Principal-Agent Theory describes how agents typically have an advantage over their relationships with principals due to information asymmetries (e.g. principals can never be quite sure if agents are acting in the principals best interests) (Jensen et al., 1976; Mitnick, 2006; Ross, 1973). Because of this uncertainty, many principals use incentives and mechanisms to try to steer agents' behavior to better align with their own interests (Jensen et al., 1976; Mitnick, 2006; Ross, 1973). Principal-Agent Theory highlights multiple agent and principal arrangements that include multiple chains between actors, with some serving dual roles as a principal and agent (Angell, 1993; Langer, Schroder-Back, Brink & Eurich, 2004; Langer, Schroder-Back, Brink & Eurich, 2008; Moe, 1984; Shortell, Waters, Clarke & Budetti, 1998). This dual principal-agent concept was applied to the conceptual framework to describe the multiple relationships between CMS, MA plans, SNFs and patients. The

relationships include CMS as the principal and MA plans as the agents; CMS as the principal and SNFs as the agents; MA plans as the principals and SNFs as the agents; and patients as the principal to which all the other actors are ultimately accountable.

Based on the conceptual framework and empirical literature, three hypotheses were generated:

Hypothesis #1: Due to favorable selection, FFS beneficiaries will be in poorer health and use more health services, on average, than MA enrollees, all else being equal.

Hypothesis #2: Rehospitalization rates from SNFs will be lower among Medicare beneficiaries enrolled in MA than those enrolled in FFS Medicare.

Hypothesis #3: MA plan enrollees will have a lower likelihood of rehospitalization from SNF than Medicare FFS beneficiaries, after controlling for patient and SNF characteristics.

The next chapter – the methods chapter – will outline the mixed methods proposed for evaluating these hypotheses. The methods chapter will begin with a summarization of why the use of mixed methods is appropriate for this research and how it intends to fill gaps in the literature surrounding rehospitalizations. The methods chapter will then go on to describe the quantitative component of the study followed by the study's qualitative component. Lastly, details will be provided regarding how the IRB will be involved in this research.

CHAPTER 4

RESEARCH METHODS

Using mixed methods, this research aimed to answer the primary research question of *does the type of insurance (Fee-for-Service (FFS) v. Medicare Advantage (MA)) influence the risk of rehospitalization 30 days post-hospital discharge for patients with heart failure in a skilled nursing facility (SNF)*. Quantitative and qualitative methods were used to jointly assess the conceptual framework, research questions and hypotheses previously presented. This chapter will: 1) discuss the rationale for using mixed methods for this research, 2) discuss the quantitative data used for this research and the analytical approach, 3) discuss the qualitative component of the study, and 4) describe the Institutional Review Board (IRB) approval for this research and potential study limitations.

Rationale for Mixed Methods

This research aimed to contribute to the rehospitalization literature with its mixed methods approach. Agotnes and colleagues (2016) conducted a literature review of rehospitalization research, finding that few studies employed mixed methods and recommending that further research draw from both qualitative and quantitative data to better understand the dynamics underlying rehospitalizations. This research serves, in part, to answer that call: its quantitative aspect will demonstrate whether or not the type of insurance

a person carries in SNF influences their risk of rehospitalization in the specific context studied, while its qualitative component will serve, in part, to cross-validate the statistical findings (Denzin, 1970; Jick, 1979; Lin, 1998; Miller, 2004). The qualitative component may also uncover dimensions in the relationship between insurance type and risk of rehospitalizations that might have remained uncovered if just quantitative data were used, or uncover factors to be explored in future quantitative analyses.

Quantitative Methods

This research used quantitative data from the Heart Failure Disease Management in Skilled Nursing Facilities (SNF Connect) study, a randomized cluster trial of heart failure disease management versus usual care funded by a National Institutes of Health (NIH), National Heart Lung and Blood Institute (NHLBI) grant (#R01 HL 113387) and conducted by the University of Colorado School of Medicine. The following section first describes the SNF Connect study from which the quantitative data derives (e.g. study purpose, study design, participant eligibility, data collection). Next, it will provide an overview of the data, sample, measures and analytical plan.

The SNF Connect study

The SNF Connect study began in Colorado in 2014 and was conducted in 45 SNFs (see Table 4.1) throughout the Denver metropolitan area. The study was commissioned under a 5-year grant to help develop a heart failure disease-management program for patients with heart failure in SNFs. Currently, there is no nationwide set protocol for heart failure care in the SNF environment. The goal of SNF Connect was to compare the health outcomes (e.g. rehospitalizations, emergency room visits and death) of those enrolled in the intervention

group (Heart Failure Disease Management Program (HF-DMP)) versus the control group (referred to as usual care). Participating SNFs in the SNF Connect study worked with the SNF Connect team to allow access to paper and electronic records for their patients. A Health Insurance Portability and Accountability Act (HIPAA) waiver was obtained to allow study staff to screen for eligible patients at each SNF prior to their enrollment. The Colorado Multiple Institutional Review Board (COMIRB) granted the waiver, since recruitment of patients was deemed impracticable without it.

Table 4.1: Number of SNFs Contributing to the SNF Connect study by Group (Usual Care Versus Intervention), n=45

SNF Connect study group description	Number of SNFs contributing to the SNF Connect study
At least one usual care participant	29
At least one intervention (HF-DMP) participant	28
Only usual care participants enrolled	8
Only intervention (HF-DMP) participants enrolled	7
Both usual care and intervention participants enrolled	21
At least one usual care or one intervention participant enrolled	36
No recruitment	9

Prior to enrollment into the study, SNF Connect staff screened all newly admitted patients at each SNF to determine if they had a diagnosis or history of heart failure as indicated in their SNF chart (i.e., paper or electronic medical record). Patients were eligible for study enrollment if they had a diagnosis or history of heart failure, but were excluded if they came from long-term care (in a nursing facility) or had a life-threatening illness that predicted mortality in 6 months or less, including metastatic cancer, inoperable primary valve

disease or end stage renal disease with dialysis. Prior to consent, all patients were screened for cognitive ability to self-consent using the Brief Interview for Mental Status (BIMS) score and the Confusion Assessment Method (CAM). Patients who failed the cognitive tests were not excluded, but had to have a proxy consent on their behalf. Patients were eligible for enrollment into SNF Connect up to 7 days post-SNF admission and participated for 60 days post-admission.

Following consent, all participants completed a baseline assessment, which included the participants' medical history, Charlson Comorbidity Index (CCI) score (used to determine comorbidities and overall health), health literacy, medications, symptom/activity heart failure assessment, a hand grip and walk test, blood pressure, heart rate and weight, and diet order (e.g. regular, low sodium or no added salt). They were also required to complete two validated heart failure surveys/tools – the Kansas City Cardiomyopathy Questionnaire (KCCQ) and the Self Care of Heart Failure Index (SCHFI) (Green, Porter, Bresnahan, & Spertus, 2000; Riegel et al., 2004; Riegel, Lee, Dickson, & Carlson, 2009).

SNF Connect was designed as a cluster trial in which all participants were assigned to either the usual care or HF-DMP based on their SNF physician: all physicians in participating SNFs were randomized to either the usual care or HF-DMP group. The randomized clustering of the physicians prevented any one physician from caring for patients in both the intervention and control group. All patients receiving care from their SNF physician were included in a single cluster and assigned to the appropriate group (usual care v. HF-DMP) at the time of enrollment.

This dissertation utilized data from the usual care group only. However, to completely describe the SNF Connect study, a brief description of the HF-DMP is included here. The HF-DMP was designed based on standard of care for heart failure disease management derived from the American Heart Association, the American College of Cardiology and The Joint Commission's Advanced Certification in Heart Failure (Bonow et al., 2005; Hunt et al., 2005; The Joint Commission, 2017). The HF-DMP included: documenting the ejection fraction in the chart (the measure of how much blood is being pumped out of the heart with each heartbeat); documenting patient symptoms (e.g. shortness of breath, chest discomfort, decrease in activity, cough, orthopnea, lower extremity edema) and activity levels; document weight (3 times weekly) to monitor for fluid overload; dietary surveillance to ensure a low sodium diet; and titrate medication based on heart failure guidelines (Bonow et al., 2005; Hunt et al., 2005). In addition to the heart failure measures, the HF-DMP nurse provided patients and proxies with heart failure education for self-care, discharge instructions, and follow-up at 7 days post-SNF discharge to reconcile medications.

In contrast to the HF-DMP, patients randomized to the usual care group received standard SNF treatment. For the usual care group, care was monitored and tracked using chart abstraction of nurse and physician dictation by the SNF Connect researchers. SNF Connect staff were given full access to the patient's paper and electronic medical records (for both the usual care and HF-DMP groups) through a HIPAA waiver and consent by the patient at time of enrollment. Much of the usual care data came from nursing and physician documentation, mostly via electronic health record systems such as PointClickCare and

Matrix software. The SNF Connect staff documented the same elements as the HF-DMP for each day of the participant's SNF stay.

Both HF-DMP and usual care participants were followed for 60 days. Each participant (or proxy) received a phone call 7 days post SNF discharge (except for those patients who were rehospitalized, withdrew, died or were still in the SNF at or past the 60-day endpoint). The following data were collected at the 7-day call: whether they received home health care, if they were living in the same living situation as prior to their initial hospitalization, whether they had seen any doctors since their SNF discharge, and if they had any events (e.g. emergency room visits, hospitalizations or death). At 60 days, the patient was called again to determine if they had any events, to reassess their living situation and to determine whether or not they were receiving home health.

Some patients could not be reached either at the 7-day phone call and/or the 60-day phone call. Therefore, the SNF Connect researchers used a statewide database maintained by the Colorado Regional Health Information Organization (CORHIO)⁶ to look up emergency room visits, rehospitalizations and deaths during the patients' 60 day windows (all participants signed a release of medical information form upon enrollment). Data were gathered from CORHIO for all patients regardless of whether they were lost to follow-up.

⁶ CORHIO is a health information exchange that provides care providers with digital health records from a variety of care providers (e.g. physician practices, hospitals, long-term care facilities, laboratories and radiology centers) of patients throughout Colorado (CORHIO, n.d.). In total, CORHIO has over four million patients' medical records from Colorado in their database (CORHIO, n.d.). Access to CORHIO is available to any provider or organization that has a referral relationship with any of the providers or hospitals that participate in it (CORHIO, n.d.).

Study staff also obtained death records from the National Death Index (NDI) to ascertain deaths that may have been unknown. The NDI is a centralized database of death record information on file from each states' vital statistics offices. A data request was submitted using patients' names and dates of birth to the NDI where death records were matched where indicated. The primary endpoint for the SNF Connect study was composite rehospitalizations, emergency room visits, and death at 60 days. While emergency room visits and deaths were included along with rehospitalizations as the composite endpoint for the SNF Connect study, the primary endpoint for this research is rehospitalizations within 30 days post hospital discharge to a SNF.

Data from CORHIO have provided valuable additional information regarding rehospitalizations. In particular, CORHIO allowed SNF Connect researchers to access patients' files to determine if, when and why a patient was rehospitalized or went to the emergency room during their 60-day window in the study. CORHIO also allowed study staff to document whether the events were planned or unplanned and what the outcomes were for each patient in each instance. In addition, the CORHIO database was used to verify patients' accounts of the number of times they had been rehospitalized within the 60 days. This proved invaluable given that many participants failed to report hospitalizations and emergency room visits to SNF Connect staff. Without the use of CORHIO, the readmission rate using patient self-report or recorded by SNF staff would have been 18% compared to 34% with the help of using CORHIO (for both the usual care and HF-DMP groups) (Daddato, Dollar, Lum, Burke, & Boxer, 2019).

To adjudicate endpoints, the SNF Connect study established a Clinical Endpoints Committee (CEC) to review all hospital documentation of rehospitalizations to determine the cause of the rehospitalization. These results were used descriptively to provide an overview of why patients were rehospitalized (heart failure related, cardiovascular related other than heart failure, or other). These data, however, were not included in the regression models. The current penalties under the PAMA SNF-VBP program penalize SNFs for all-cause rehospitalizations within 30 days of hospital discharge to a SNF. Therefore, this research only focused on whether a patient was rehospitalized or not within 30 days of their SNF admission.

Data

All data for the SNF Connect study were uploaded into a web-based database that specifically catered to multi-institutional research, called Onward. Onward is a data capture and decision support system that allowed HF-DMP patients to be monitored for heart failure exacerbation signs and symptoms such as weight gain indicating fluid overload (Zhu et al., 2016). Based upon data captured in the Onward database, the HF-DMP nurse directed care to minimize the risk of rehospitalization (e.g. make a recommendation to SNF nurses and physicians about increasing a patient's Lasix prescription to reduce edema). Only SNF Connect staff had access to it (which included the HF-DMP nurse). Onward included modules to document baseline data (e.g. medical records, medications, weight, blood pressure, signs and symptoms), usual care data, HF-DMP data, discharge data, 7 and 60 day follow-up phone calls, and events (e.g. emergency room visits, hospitalizations or death). The primary sources of data for this research come from the baseline data and events data

indicating any rehospitalizations. Data for this research were downloaded from the Onward database into a more usable database, Statistical Package for the Social Sciences (SPSS), for coding and analysis. All data within Onward has been deidentified.

Sample

The SNF Connect study recruited 342 patients into the usual care group from 29 SNFs. Two individuals withdrew from the usual care group, leaving the total sample size of usual care patients at 340. Seven of the 340 usual care participants died without going to the hospital prior to their death within 30 days of admission to the SNF (two individuals died while in the SNF and five died after discharge to their home from the SNF). These seven individuals did not have the full 30 days to potentially be rehospitalized and thus were excluded from the final sample, leaving a final sample size of 333.

Measures

Below is a detailed description of all variables used for this research. Table 4.2 reports detailed information on the measures and data sources from which they were derived.

Table 4.2: Variable List

Variable Name	Measure	Dichotomous, Categorical, or Continuous	Source of Variable	Research Question
Dependent Variables				
Rehospitalization within 30 days of hospital discharge*	0=No; 1=Yes	Dichotomous	Onward	2, 3
Type of insurance	0=FFS; 1=MA	Dichotomous	SNF Connect enrollment log	1
Independent Variable				
Type of insurance	0=FFS; 1=MA	Dichotomous	SNF Connect enrollment log	2, 3
Covariates				
Demographics	Age	Age in Years	Continuous	SNF Connect enrollment log
	Gender	0=Male; 1=Female	Dichotomous	Onward
	Race/Ethnicity	0=White, non-Hispanic 1=Non-White	Dichotomous	Onward
	Education	Years of Education	Continuous	Onward
Overall Health	Health	Charlson Comorbidity Index (CCI) Score	Continuous	Onward – CCI module

Variable Name		Measure	Dichotomous, or Categorical, or Continuous	Source of Variable	Research Question
Number of hospital admissions in previous 12 months		Hospital Admissions 0=0 1=1 2=2+	Categorical	HOSPITAL SCORE Excel sheet	1, 3 – Descriptive/Bivariate Analyses
		0 (1,0) (reference) 1 (1,0) 2+ (1,0)	Dichotomous Variables	HOSPITAL SCORE Excel sheet	1,3 - Multivariate Analyses
		Emergency Room Visits 0=0 1=1 2=2+	Categorical	HOSPITAL SCORE Excel sheet	1,3 – Descriptive/Bivariate Analyses
		0 (1,0) (reference) 1 (1,0) 2+ (1,0)	Dichotomous Variables	HOSPITAL SCORE Excel sheet	1, 3 – Multivariate Analyses
Type of heart failure		HFpEF=0; HFrefEF=1	Dichotomous	Onward	1, 3
Length of SNF Stay		Number of days	Continuous	SNF Connect enrollment log	1, 3

Variable Name		Measure	Dichotomous, or Categorical, or Continuous	Source of Variable	Research Question
Care Trajectory 30 Days post Hospital Discharge to SNF	Hospital to SNF (Still in SNF at 30 days)	0=No; 1=Yes, reference	Dichotomous	Onward	1
	Hospital to SNF to Home	0=No; 1=Yes	Dichotomous	Onward	1
	Hospital to SNF to Home to Hospital	0=No; 1=Yes	Dichotomous	Onward	1
	Hospital to SNF to Hospital	0=No; 1=Yes	Dichotomous	Onward	1
SNF Characteristics		Medicare-Medicaid certified beds)	Continuous	Nursing Home Compare	1, 3
		Patient case mix acuity	Continuous	LTCFocus	1, 3
		Proportion of Medicare patients served	Continuous	LTCFocus	1, 3

Variable Name		Measure	Dichotomous, Categorical, or Continuous	Source of Variable	Research Question
	Number of Contracted MA plans	Number of contracted MA plans	Continuous	Emails, phone calls or in-person inquiries from SNF staff	1, 3
	Overall Star Rating	Average score from 2015-2017	Continuous	Nursing Home Compare	1, 3 – Descriptives/Bivariate Analyses, Multivariate Analyses
	Health Inspection Star Rating	Average score from 2015-2017	Continuous	Nursing Home Compare	1, 3 – Descriptives/Bivariate Analyses, Multivariate Analyses
	Staffing Star Rating	Average score from 2015-2017	Continuous	Nursing Home Compare	1, 3 – Descriptives/Bivariate Analyses, Multivariate Analyses
	Quality of Resident Care Star Rating	Average score from 2015-2017	Continuous	Nursing Home Compare	1, 3 – Descriptives/Bivariate Analyses, Multivariate Analyses

Variable Name		Measure	Dichotomous, Categorical, or Continuous	Source of Variable	Research Question
*Reason for rehospitalization was included in the descriptive analysis only	Heart failure related	0=No; 1=Yes	Dichotomous	Onward, CORHIO, Clinical Endpoints Committee	2
	Cardiovascular related other than heart failure	0=No; 1=Yes	Dichotomous	Onward, CORHIO, Clinical Endpoints Committee	2
	Other related	0=No; 1=Yes	Dichotomous	Onward, CORHIO, Clinical Endpoints Committee	2

Dependent variables

There were two dependent variables in this study: Whether a patient was rehospitalized or not, and the type of insurance the patient carried – FFS versus MA. Specific to this research and in line with policy direction under the PAMA SNF VBP of 2014, the primary dependent variable for this analysis was whether a *patient was rehospitalized within 30 days post-hospital discharge to a SNF*. The variable for rehospitalizations was coded as a dichotomous variable (0=no, 1=yes). All data compiled from CORHIO was documented in Onward, which is where this variable was pulled from. If a patient was admitted back to a hospital within 30 days post-hospital discharge to a SNF then it was counted as a rehospitalization. If a patient went to the emergency room, but was not admitted or was kept in observation status in the hospital it did not count as a rehospitalization. The *reason for rehospitalization* was also included descriptively to provide an overview of the cause of readmission for each patient (i.e. heart failure related, cardiovascular related other than heart failure, or other related). These variables were not included in the analyses, however, because current penalties under PAMA's SNF-VBP penalize for all-cause 30-day rehospitalizations rather than potentially preventable rehospitalizations. Therefore, the reason for the rehospitalization is less important from a policy perspective. Study staff used CORHIO to obtain the complete medical records for each patient's rehospitalization following their SNF admission. The complete medical record for the rehospitalization was then sent to the Clinical Endpoints Committee (CEC) for the SNF Connect trial. Two physicians reviewed each of the medical records and indicated what they thought the cause was (i.e. heart failure related, cardiovascular related other than heart failure, or other related). If the two reviewers

did not agree on the cause of the rehospitalization, the medical record was sent to a third reviewer who was used for consensus and final determination of the cause of readmission. The variable *rehospitalized within 30 days post-hospital discharge to a SNF* was the dependent variable for research questions 2 and 3:

2) Do SNF patients with heart failure with MA coverage have lower rates of rehospitalization within 30 days post-hospital discharge to a SNF compared to SNF patients with heart failure enrolled in FFS Medicare?

3) Do SNF patients with heart failure with MA coverage have a lower likelihood of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare, after adjusting for and matching individual-level and facility-level factors?

The second dependent variable used in this research was the *type of insurance*--FFS v. MA—a patient had. Previous research demonstrates that there are differences in several key demographic and health-related measures between FFS vs. MA enrollees. Individuals who enroll in MA plans tend to be older, of a minority race, Hispanic, less educated, and with lower income (AHIP, 2015; Elliott et al., 2011; Keenan et al., 2009; Mirel et al., 2012). MA members also tend to report that their overall health is better than FFS beneficiaries; suggesting favorable selection of healthier beneficiaries on the part of MA plans (Elliot et al., 2011; Keenan et al., 2009).

The primary insurance for each participant was collected at the time of enrollment into the SNF Connect study via the patient's SNF facesheet and documented in the SNF Connect enrollment Excel spreadsheet. A limitation to just using the insurance type at the time of enrollment into SNF Connect was that a patient's insurance coverage could have

changed previously or following enrollment into the study. However, this data was not collected during the SNF Connect trial and therefore was unobtainable.

In total, five Medicare Advantage insurance companies are represented (e.g. Kaiser Permanente, Cigna, United Healthcare, Anthem Blue Cross Blue Shield, Humana and Aetna). However, due to the small sample size, participant MA insurance could not be further categorized into insurance company or type (HMO, PPO, POS, etc.). The health insurance of each participant was coded dichotomously: 0=FFS, 1=MA. This secondary dependent variable was used in analyses addressing the first research question –

- 1) *Do the personal characteristics of SNF patients with heart failure with MA coverage differ from SNF patients with heart failure enrolled in FFS Medicare?*

Independent variables

A number of independent variables identified by the literature review were used for this research. The various independent variables describe both patient and SNF level factors.

Type of Insurance. The *type of insurance* (FFS v. MA) was the primary independent variable used in analyses addressing research questions 2 and 3. Previous literature primarily points to MA members experiencing fewer rehospitalizations within 30 days post-hospital discharge to a SNF compared to FFS beneficiaries (AHIP, 2009a; AHIP, 2009b; AHIP, 2009c; AHIP, 2010b; AHIP, 2010c; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018). A smaller number of studies has found the opposite effect wherein MA members have a greater risk for rehospitalization compared to FFS beneficiaries (Experton et al., 1999; Friedman et al., 2012). Lastly, other research has found no significant differences between insurance type and the risk for rehospitalization (Friedman et al., 2009;

Oh, 2017; Raetzman et al., 2015; Smith et al., 2005). Again, the primary payer for each participant was coded as a dichotomous variable, 0=FFS, 1=MA.

Demographic variables included age, gender, race/ethnicity and education. Overall health was reflected by the Charlson Comorbidity Index (CCI), number of hospitalizations in the previous 12 months, number of emergency room visits in the previous 12 months, type of heart failure (HFpEF v. HFrEF), and length of SNF stay. The demographic and health variables served as covariates in the analysis addressing research question 3. They also served as independent variables in the analysis addressing question 1. The care trajectories of each patient within 30 days of their admission to the SNF were also included in the bivariate analysis for research question 1. In addition, SNF characteristics were used in the analyses of research questions 1 and 3. The coding of each of these variables is described below.

Demographics. Basic demographic variables included *age in years* (continuous), *gender* (0=male, 1=female) and *education in years* (continuous). *Race/ethnicity* was originally to be coded categorically for the descriptive/bivariate analyses (1=Non-Hispanic White, 2=Non-Hispanic Black, and 3=Other) and as a series of three dichotomous indicator variables (0, 1), Non-Hispanic White (reference), Non-Hispanic Black, Other for the regressions. However, very few individuals were non-white. Therefore *race/ethnicity* was coded dichotomously (0=white, non-Hispanic, 1=non-white). The age of the patient at the time of enrollment into the study was calculated by subtracting the date of birth minus the date of enrollment into SNF Connect. The variables for gender, race/ethnicity and years of education were all documented in the Onward database. Previous literature indicates that older, male, Black individuals are more likely to be rehospitalized from a SNF compared to

their younger, female, white counterparts (Barker et al., 1994; Li et al., 2015; Neuman et al., 2014). These demographic variables described differences between the FFS and MA populations for the descriptive, bivariate, and multivariate analyses.

Health. A patient's health has shown to play a potential role in favorable selection among insurance companies (Elliott et al., 2011; Keenan, Elliott, Cleary, Zaslavsky and Landon, 2009). Therefore, four key variables were used to reflect overall health – the CCI, number of hospitalizations in the previous 12 months, number of emergency room visits in the previous 12 months, and type of heart failure (HFpEF v. HFrEF).

Charlson Comorbidity Index. Prior research comparing FFS v. MA beneficiaries has used a variety of measures to determine a patient's overall health, including self-rated health (Elliott et al., 2011; Keenan et al., 2009) and the CCI (Pettersen et al., 2016). The SNF Connect study did not specifically ask patients about their self-rated health. Therefore, patients' overall health was measured using the CCI, consistent with Pettersen and colleagues (2016) in their comparison of hospitalization risk among FFS and MA beneficiaries.

CCI accounts for comorbid conditions that may lead to mortality within one year (Charlson, Pomei, Ales, & MacKenzie, 1987). The CCI is a weighted scale ranging from 0-22 that takes into account the seriousness of each comorbid disease and its risk for mortality within one year (Charlson et al., 1987). Scoring for the CCI is as follows: comorbid diseases such as a history of a myocardial infraction, heart failure, peripheral vascular disease, cerebrovascular disease, dementia, chronic pulmonary disease, connective tissue disease, ulcer disease, mild liver disease and diabetes without end-organ damage are all weighted

with a score of 1 (Charlson et al., 1987). Comorbid diseases with a weighted score of 2 include hemiplegia, moderate or severe renal disease, diabetes with end-organ damage, any tumor, leukemia or lymphoma (Charlson et al., 1987). Moderate or severe liver disease receives a weighted score of 3 and lastly, having a metastatic solid tumor or AIDS is scored as a 6 (Charlson et al., 1987). Individual diagnosis-specific scores are summed to produce each patient's total CCI score. At the time of enrollment into SNF Connect, each patient's medical history was reviewed with the patient and with their medical records for completeness. All identified medical diagnoses were then tallied in the CCI module within the Onward database which provides a total score (Charlson et al., 1987).

Charlson and colleagues (1987) found, among inpatients at the New York Hospital-Cornell Medical Center, that having a score of 0 predicted a 12% mortality rate within one year, a score of 1-2 predicted a 26% mortality rate, a score of 3-4 predicted a 52% mortality rate and a score of 5 or more predicted an 85% mortality rate. Given the risks of mortality as described by Charlson and colleagues (1987) and given that all of the participants in the SNF Connect study had a score of at least 1 due to congestive heart failure, the CCI variable describing *overall health* in this research was categorized as a continuous variable (1+).

Number of hospital admissions in the past 12 months. Another measure used to assess a patient's overall health was their healthcare utilization in the previous 12 months as indicated, in part, by *the number of hospital admissions in the past 12 months* (excluding the hospitalization prior to SNF admission). This data was obtained during the baseline interview via the patient's self-report but also verified using CORHIO. Using data from 1,807 patients in the Mid-Michigan Guidelines Applied in Practice – Heart Failure (GAP-HF) study,

Hummel, Katrapati, Gillespie, DeFrano and Koelling (2014) found that the number of hospital admissions in the previous 12 months was positively associated with risk of rehospitalization for patients with heart failure. They found that patients who were hospitalized in the previous 12 months (prior to their current hospital admission) were at a greater risk for all-cause 30 day rehospitalizations compared to those individuals who had not been hospitalized in the previous 12 months. In their results, Hummel and colleagues found that 13% of their sample were rehospitalized having had no previous admissions. However, 39% of patients with one previous admission in the last 12 months were rehospitalized within 30 days and nearly half of patients (48%) with two or more previous admissions were rehospitalized (Hummel et al., 2014). The number of hospitalizations in the previous 12 months were coded categorically (similar to Hummel et al., 2014), 0, 1, and 2+, for the descriptive/bivariate analyses, and as series of dichotomous variables for the regression analyses, 0 (reference), 1, 2+ for the regressions).

Number of emergency room visits (without hospital admission) in the past 12 months. The total number of emergency room visits in the past 12 months was used as another indicator of healthcare utilization. This data was also obtained during the baseline interview via patient self-report but also verified using CORHIO. Prior research has indicated that when older adults (age 65 and older) visit the emergency room, roughly 30-70% of them end up being admitted to the hospital (Aminzadeh & Dalziel, 2002; Baum & Rubenstein, 1987; Eagle, Rideout, Price, McCann & Wonnacott, 1993; Ettinger, Casani, Coon, Muller & Piazza-Appel, 1987; Lo et al., 2016; Lowenstein, Crescenzi, Kern & Steel, 1986; Salzman, Knuth, Cunningham & LaNoue, 2019; Singal et al., 1992). When older adults are

discharged from the emergency room or the hospital they are likely to have another emergency room visit in the near future (Moons et al., 2007). Moons and colleagues (2007) study of 83 older adults who visited an emergency room in Belgium from October to December 2015 found that many were readmitted to a hospital within 14 (10%), 30 (16%) and 90 (33%) days post-hospital discharge. This is similar to what other research has found in that the rates of older adults going back to the emergency room were between 8-20% within one month of original discharge, 19-24% after 3 months, and 40% after 6 months (Biese et al., 2019; Bentley & Meyer, 2004; Caplan, Brown, Croker & Doolan, 1998; Caplan, Williams, Daly & Abraham, 2004; Earl-Royal et al., 2017; Friedmann et al., 2001; McCusker, Cardin, Bellavance & Belzile, 2000; McCusker, Healey, Bellavance & Connolly, 1997; Mion et al., 2003). The variable for the *total number of emergency room visits* in the past 12 months was coded in the same way as the number of rehospitalizations in the previous 12 months (categorical, - 0, 1, and 2+, for the descriptive/bivariate analyses and a series of dichotomous variables, - 0 (reference), 1, 2+, for the regressions).

Heart failure. The measure for heart failure used in this study was the *type of heart failure – HFpEF versus HFrEF*. This variable was included in this research because prior research has demonstrated that the risk of hospitalization varies between individuals with these two types of heart failure (Owan et al., 2006). Echocardiograms are identified as one of the best measures of ejection fraction given that they are non-invasive, can measure ventricular function and can provide a visual of the structure of the heart (Kirkpatrick, Vannan, Narula, & Lang, 2007). The ejection fraction measures how much blood is pumped out of the left ventricle to the rest of the body (American Heart Association, 2016). Based

upon the percentage of the ejection fraction, there are two categories of heart failure: 1) HFpEF and 2) HFrEF (American Heart Association, 2016). HFpEF (previously known as diastolic heart failure) is when the heart muscle has become stiff and the ventricles do not relax to allow for proper filling of the heart with blood; it is classified in the SNF Connect study as an EF of 41% or higher based upon American Heart Association guidelines (American Heart Association, 2016). Patients with HFrEF have a heart in which the muscle has dilated, becoming more spherical rather than elliptical in shape and therefore unable to effectively contract well enough to pump blood out to the body (indicated by an EF of 40% or below) (American Heart Association, 2016). At the time of enrollment into SNF Connect, all participants were categorized as either HFpEF or HFrEF. If the ejection fraction was not available, the actual categorization of the type of heart failure as indicated in the SNF documentation or hospital discharge paperwork was used. The type of heart failure is important because it guides clinical practice and effects rehospitalization risk (Jurgens et al., 2015a; Owan et al., 2006). Individuals with HFpEF are at a greater risk of rehospitalization compared to their counterparts with systolic heart failure (HFrEF) (Nanayakkara et al., 2018; Owan et al., 2006). The variable for type of heart failure was coded dichotomously (0=HFpEF, 1=HFrEF).

Length of SNF stay. MA plans use utilization review and case management to determine patients' lengths of stay and appropriateness of care throughout their SNF stay. To keep costs down, studies have shown that MA plans shorten their beneficiaries' lengths of stay in SNFs (Angelelli et al., 2000; Gadbois et al., 2018). Patients may also choose to shorten their length of SNF stay when patients' copayments start to kick in. For example,

Medicare FFS beneficiaries may be more apt to discharge from the SNF on day 20 because days 21-100 will incur a copayment whereas days 1 to 20 do not (Chatterjee, Qi, Coe, Konetzka, & Werner, 2019). In addition, Chatterjee and colleagues (2019) found that some SNFs seek to discharge FFS beneficiaries before day 21 so as to avoid accruing any bad debt if the patient is unable to pay their copayments. A shorter length of SNF stay may influence a patient's risk of rehospitalizations. In an analysis of risk factors for rehospitalization from SNFs, Burke and colleagues (2016) found that patients with a shorter length of SNF stay were at a greater risk for rehospitalization compared to patients with longer lengths of stay. Angelelli and colleagues (2000) reported that MA beneficiaries had significantly shorter lengths of SNF stay than their FFS counterparts. Using data from four for-profit SNFs from June 1996 to September 1998, they found that MA beneficiaries' length of SNF stay was 9.1 days compared to 13.1 days for FFS beneficiaries. Some research supports the notion that a shorter length of stay in the hospital leads to a greater risk of future rehospitalizations (Eapen et al., 2013; Heggstad, 2002; Southern & Arnsten, 2015). However, other research has found little to no effect on the risk of rehospitalizations due to a decrease in hospital lengths of stay (Bueno et al., 2010; Kaboli et al., 2012 ; Sibia, Waite, Callahan, Park, King & MacDonald, 2017; Unruh, Trivedi, Grabowski & Mor, 2013). In this study, length of SNF stay was used in the bivariate analysis comparing FFS versus MA patients to determine whether the average length of SNF stay is different between the two groups. Length of SNF stay was then used as a control variable in the multivariate analyses comparing risk of rehospitalization. The variable for *length of SNF stay* was coded as a continuous variable, in days.

Care trajectory 30 days post hospital discharge to SNF. The care trajectory for each patient was reported descriptively and used in the bivariate analysis for research question 1 to determine if there was a difference in the care trajectory post hospital discharge to a SNF by insurance type. The various care trajectories were divided into those patients who went from the *hospital to SNF* (and were still in the SNF at 30 days post hospital discharge to a SNF), *hospital to SNF to home*, *hospital to SNF to home to the hospital*, and *hospital to SNF to the hospital*. Each of these variables were coded dichotomously (0=No, 1=Yes). Previous literature by Kumar and colleagues (2018) compared the care trajectories of patient with FFS versus MA using a secondary analysis of administrative data. They found that MA members had lower risk of becoming a long-term care resident (0.6 percentage point lower) and were more likely to be discharge back into the community (e.g. home) (3.2 percentage points higher) following their post-acute care treatment in a SNF compared to FFS beneficiaries. Care trajectory post-hospital discharge to a SNF was not included in the examination of research questions 2 and 3 because they would have been highly correlated with the dependent variable in analyses examining whether or not a patient was rehospitalized within 30 days or not.

SNF characteristics. As noted, facility-level characteristics associated with quality of care can also impact rehospitalizations (Administration on Aging, 2012; AHIP, 2010a; Hutt et al., 2003; Intrator et al., 1999; Konetzka et al., 2018; Li et al., 2015; Lichman et al., 2010; Neuman et al., 2014; Ogunneeye et al., 2015; Pandolfi et al., 2017; Rahman, Foster, Grabowski, Zinn & Mor, 2013; Rahman et al., 2016; Rahman, Zinn & Mor, 2013; Thomas et al., 2012; Toles et al., 2012; Zimmerman et al., 2002; Unroe et al., 2012). Therefore, this

study controlled for variables related to the participating SNFs recruited, including *number of certified Medicare-Medicaid beds* (continuous), the *proportion of Medicare patients* (continuous) served and the *case mix acuity* (continuous) of those patients at each SNF.

Information regarding number of certified Medicare-Medicaid beds came from CMS' Nursing Home Compare website. Prior research indicates that the greater the case mix acuity, the greater the risk for rehospitalization (Rahman, Zinn & Mor, 2013). Both proportion of Medicare patients and case mix acuity were collected from Brown University's *Long-Term Care: Facts on Care in the US* (LTCFocus). The data for LTCFocus derives from a number of sources including information from the Certification and Survey Provider Enhanced Reporting (CASPER) systems, both of which come from data collected during state surveys of SNFs (LTCFocus, 2020). The case mix acuity index was calculated in the LTCFocus dataset by the number of residents in the SNF who need assistance with activities of daily living (ADLs) or special treatment (e.g. receiving IV therapy) divided by the total number of residents at the SNF (LTCFocus, 2020). Of note, I had originally proposed to include ownership type (for-profit, non-profit or government-run) and chain affiliation (yes vs. no) as control SNF-level variables. Upon analysis, however, 95.6% of the SNFs were for-profit (1.2% non-profit and 3.2% government) and 96.8% were chain-affiliated. Therefore, these variables were not included in the final analysis of the data.

In the highly competitive SNF market, it is also important to account for how many MA plans each SNF contracts with. This data was not readily available, but was obtained from the 29 participating SNFs directly (e.g. via email, telephone and/or in person). Each SNF was asked how many MA plans they contracted with as of September 1, 2017. For

example, some SNFs may have separate contracts with Kaiser, United Healthcare and Anthem Blue Cross Blue Shield, while others contract with only one of these plans. The total number of MA plans with which the SNF contracts with were tallied for each SNF. *Number of contracted MA plans* was coded continuously.

In addition to facility characteristics, CMS' Nursing Home Compare website reports 5 star quality measures that are used to rate SNFs: these include an overall measure incorporating all three dimensions as well as each individual dimension: of health inspections, staffing and quality of resident care. Data for the Nursing Home Compare star ratings came from two sources: CMS' health inspection database, which documents nursing home characteristics and survey deficiencies from the SNF's three most recent state inspections and investigations of complaints; and the Minimum Data Set (MDS), which is a mandatory clinical assessment, completed by SNFs for every resident (CMS, n.d.d.).

Each of the 29 SNFs that had a usual care participant enroll in the SNF Connect study was included in this research. Each of the 29 SNF's Nursing Home Compare 5 star ratings were included as covariates, including overall rating, health inspections rating, staffing rating, and quality of resident care rating. Given that usual care patient recruitment in each of the SNFs began in 2014, the average score for each of the categories was calculated using the average of the 2015, 2016 and 2017 scores (2014 scores came from 2013 – therefore 2014 scores were excluded). Using 2015 instead of 2014 data also helped to account for CMS' announcement that on January 1, 2015 they would re-calibrate the Star Rating system, which would have made it difficult to compare star ratings before and after that date (Centers for Medicare and Medicaid Services, 2015f).

Nursing Home Compare reports the 5-star rating as follows: 1 star indicates much below average (bottom 20%), 2 stars indicates below average, 3 stars indicates average, 4 stars indicates above average, and 5 stars indicates much above average (top 10%). The *overall star rating* combines all three scores from the health inspection, staffing and quality of resident care ratings (CMS, n.d.i.). The *health inspection star rating* reflects assessment of process and structural aspects of care and health and fire safety issues (e.g., mistreatment, care processes, deficiencies, prevention and treatment of pressure ulcers, follow-up of injuries that occur within the SNF, resident assessment for functional capacity and planning of care, resident rights, nutrition and dietary, pharmacy services, environment, and fire safety) (Boccuti, Casillas, & Neuman, 2015; CMS, n.d.i.; CMS 2019b). The *health inspection star rating* is based on the three most recent annual state health inspections and any investigations from complaints (CMS, 2019b). The *staffing star rating* rates the number of staffing hours per resident as reported by the SNF (from the two-week period prior to the state inspection) for all staff including registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs), and physical therapists (PTs) (CMS, n.d.i.). Lastly, the *quality of resident care star rating* comes directly from aggregate Minimum Data Set for each SNF and includes such measures as whether or not patients have had their recent immunizations including the flu vaccine, weight loss, and pain control (CMS, n.d.i.). The variables for overall, health inspections, staffing, and quality of resident care star ratings were measured as continuous variables (1-5) for the descriptive/bivariate analyses and regressions.

Analytic plan

Descriptive and bivariate analyses

The general quantitative analytic plan for this research included examination of descriptive statistics, bivariate relationships, and multivariate modeling (see Appendix A). The descriptive statistics for each variable includes their mean, median, standard deviation, minimum, maximum, frequency, count and percentage as applicable. Crosstabs/Pearson chi-Square tests and t-tests were used to analyze bivariate relationships between the dependent variables (rehospitalizations and type of insurance) and the independent variables and covariates.

Following the descriptive and bivariate analyses, the multiple imputation by chained equations (MICE) method was used to address missing data in the dataset. Among the 333 patients in this research, 83% of them had complete data on all measures. Patient case mix acuity and the percent of Medicare beneficiaries served had the greatest amount of missing data. The MICE method, which accounts for different variable types (e.g. continuous versus dichotomous) and randomly missing data, produces multiple, complete datasets (Azur, Stuart, Frangakis, & Leaf, 2011; Schafer, 1999; Schafer & Graham, 2002). Using this method, five different imputations were created. A pooled dataset was then created based upon the five different imputations' means and variances to come up with pooled means and standard errors. The pooled dataset was used in the multivariate analyses.

Generalized estimating equations

Multivariate analysis using hierarchical modeling (generalized estimating equations (GEE)) were used to determine the odds of enrollment into either FFS or MA (research

question 1), controlling for patient and SNF characteristics. GEE addresses random effects that do vary across groups (e.g. variance between SNFs) (Hofmann, 1997; Woltman, Feldstain, MacKay & Rocchi, 2012). Liang and Zeger (1986) were the first to introduce the concept of GEE to account for the shortcomings of regressions where the dependence within clusters was not accounted for. Two models were run for research question 1 using GEE, which allowed for comparison of the inclusion of overall star rating in the model versus health inspection star rating, staffing star rating, and quality of resident care star rating.

Hierarchical GEE (along with robust standard errors) was also used to determine the relationship between type of insurance and the risk of rehospitalization, controlling for patient and facility characteristics and used to account for the clustering of observations within the dataset; in particular, study participants across the 29 SNFs represented in the dataset (research question 3). Two models were also run for research question 3 using GEE, which allowed for comparison of the inclusion of overall star rating in the model versus health inspection star rating, staffing star rating, and quality of resident care star rating.

Propensity score analyses

Due to concerns about self-selection issues that may occur for beneficiary enrollment in FFS vs. MA, in research question 3, I performed additional analyses using propensity scores to compare to the GEE results (Dehejia & Wahba, 2002). I estimated propensity scores for each individual by finding the probability of being in FFS versus MA given their baseline characteristics and the characteristics of the SNFs in which they received care using logistic regression. After estimating the propensity scores, two different treatment effects models/strategies were run: 1) propensity score matching (PSM), and 2) inverse-probability-

weighted regression adjustment (IPWRA). Within each strategy, two models were examined: one model used the overall star rating and the other model used health inspection, staffing, and quality of resident care star rating as covariates. All models included patient- and SNF-level variables as covariates.

The first model used propensity score matching, which matches participants based on their estimated propensity score, then calculates a treatment effect by comparing outcomes across matched pairs (Williamson, Morley, Lucas, & Carpenter, 2011). The standard error of the treatment effect used in the PSM analysis was the Abadie and Imbens standard errors (Abadie & Imbens, 2012). The Abadie and Imbens standard errors are used because of the additional estimation that needs to be done when estimating the propensity score prior to matching (Abadie et al., 2012).

A second treatment effects model was run using inverse-probability-weighted regression adjustment, which uses the estimated propensity score as a weight in the regression model. With the IPWRA model, the Huber/White/Sandwich estimators for the standard errors were used, which allowed for robust standard errors to model misspecification and accounts for potential within-cluster (SNF) correlation (Williams, 2000). This cluster variance estimator explicitly allows for the individuals within the SNFs not to be treated as independent, but the SNFs themselves remain independent (Rogers, 1993). All data were coded and analyzed using SPSS software (except for the PSM and IPWRA analyses models, which were conducted using Stata 16 software).

Rigor: Validity & reliability in measurement. In quantitative research, the quality of the results is dependent, in part, on the validity and reliability of the measures employed to

operationalize the relationships examined. Construct validity describes the accuracy of the measures, in terms of how well the measures being used actually measure what they are intended to measure (Adcock & Collier, 2001; Heale & Twycross, 2015). Reliability concerns the consistency with which the instruments used to measure a given variable do so the same way each time it is used (Golafshani, 2003; Kirk & Miller, 1986). On the one hand, this study includes variables (e.g., the CCI, measures informing CMS' five star quality indicators), which have been established in prior research to have acceptable validity and reliability (Charlson et al., 1987; Neuman et al., 2014; Ogunneye et al., 2015; Pandolfi et al., 2017). On the other hand, this study includes other measures including third-party sources, which have not been established in the literature. For example, for *the number of contracted MA plans* variable I requested this information from the staff of the 29 participating SNFs. I asked for the number of MA insurance contracts each SNF had as of September 1, 2017 to help standardize the measurement of this variable and minimize the threat to validity. The SNF Connect study gathered a variety of data points including the health history of the participants. Patients were asked to self-report on their health history (e.g. number of emergency room visits and rehospitalizations in the previous 12 months). However, there were concerns about the accuracy of the self-report data. Therefore, the SNF Connect staff used CORHIO data to verify the accuracy of the patients' self-report of emergency room visits and hospitalizations in the previous 12 months. In addition, the CORHIO data allowed SNF Connect staff to also uncover other events that occurred in the previous 12 months that were not reported by the patient. The use of CORHIO was invaluable to addressing issues of reliability and validity. Without the use of CORHIO, SNF Connect staff estimated that as of

September 2017, 45% of rehospitalizations (for both the intervention and usual care groups) that occurred following SNF admission would have been missed if relying solely on patient self-report. Lastly, all data collected for the SNF Connect study was self-reported, but then also verified by the SNF Connect staff through chart abstraction to ensure completeness and accuracy of the data.

Rigor: Internal validity. Internal validity is the ability for research to determine a causal relationship between the independent and outcome variables, often involving receipt of a treatment and the outcome of interest (Slack & Draugalis, 2001). Internal validity is strongest in randomized experiments; less strong in quasi-experimental designs; and weakest when researchers rely entirely on statistical controls to isolate the relationship between the independent and dependent variables. The current research is not a randomized controlled design, nor is it a quasi-experimental design. The primary purpose of this research is to determine if there is a difference in the rates of rehospitalization between individuals enrolled in FFS versus MA. The secondary purpose is to examine whether or not there are health and demographic differences between individuals who are enrolled in FFS and MA. The lack of experimental design heightens the threat to internal validity.

This research uses a number of measures to combat threats to internal validity. Slack and colleague (2001) identified key threats to internal validity including history, selection, and experimental mortality. The threat of history means that over time other factors external to the study may have changed, thereby explaining, in part, changes observed in the dependent variable. More specifically, selection-history is used to explain how the threat of history affects the control group differently from the treatment group. The data for the SNF

Connect study was collected from June 2014 through September 2017. Within this timeframe, it is possible that changes occurred in terms of staffing, insurance plan contracts, heart failure education/guidelines for SNF staff, and Nursing Home Compare star ratings, among other pertinent factors. However, it is not likely that these changes affected the usual care group more than the treatment group. In addition, because I am only using the usual care group for the analysis and not comparing them to the treatment group, the threat of history is not likely to be a factor.

Selection implies that subjects were selected into the Medicare FFS versus MA group based, in part, on characteristics likely to influence the risk of rehospitalization (Slack et al., 2001). Favorable selection into MA plans, as discussed in the literature review, remains a problem (Hellinger et al., 2000; Landon et al., 2012a; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Rahman et al., 2015). This research will specifically determine if there are health disparities using key health variables (e.g. CCI, number of emergency room and hospitalizations in the previous 12 months) between the FFS and MA beneficiaries to assess for favorable selection. In addition, data from SNF Connect assessed for this concern. The selection threat is mitigated, in part, by the way patients were recruited into the broader SNF Connect Study within which this study is situated. All patients admitted to the 45 participating SNFs in the SNF Connect study were screened for heart failure, independent of their MA v. FFS enrollment status. If a patient met the inclusion and exclusion criteria of the study then they were eligible for recruitment. Furthermore, the broader SNF Connect study is a randomized control trial in which participants were randomized to either the intervention or control group based on their SNF physician, again, not their FFS v. MA enrollment status.

The SNF Connect staff worked closely with a statistician to ensure the appropriate randomization of physicians. All physicians were randomized based on the physician group they worked with and whether or not they were a high or low admitter to the SNF. This prevented the intervention or control group from having more physicians than the other.

In the absence of an experimental design, the primary strategy used to address the threat of selection in the context of the study design is through the inclusion of a comprehensive set of patient- and facility-level characteristics as control variables in the statistical analyses. The inclusion of controls increases confidence that the relationship detected between MA vs. FFS enrollment and risk of hospitalization, if any, does not reflect other factors that may also influence rehospitalization risk. All variables selected for this research are based on previous literature and research. The literature review and methods section provide a detailed overview of key variables that may or may not impact an individual's risk for rehospitalization. Still, the selection of particular variables to include in this research as controls raises the possibility of omitted variable bias due to the exclusion of other potentially important factors. This possibility is particularly true at the patient-level, since the hierarchical study design will, in part, account for unmeasured differences across facilities.

The last threat to internal validity is that of experimental mortality. According to Slack and colleague (2010), experimental mortality occurs when there is attrition and/or participants withdraw from the study. Throughout the SNF Connect study, two usual care participants withdrew from the study. In addition, at the 7 and 60 day phone calls some individuals were lost to follow-up. However, for this research, the number of

rehospitalizations and emergency room visits was determined using Colorado Regional Health Information Organization (CORHIO) data. Therefore, this study did not rely on the 7 and 60 day phone calls for data which presented threats due to attrition and withdrawal.

Rigor: External validity. External validity refers to the generalizability of the results (Steckler & McLeroy, 2008). For this research external validity depends on how generalizable the findings are to other SNFs and SNF patients. The SNF Connect study worked with 45 SNFs from the Denver metropolitan area. Like participating SNFs, the Denver metropolitan SNF marketplace consists primarily of stand-alone, for-profit SNFs that are part of state or nationwide chains. This similarity between participating and other local SNFs suggests that findings from this study may be generalizable to Denver metropolitan SNFs more broadly. The patients recruited into the SNF Connect study are likely to be representative of the broader population of Denver patients given that the only basic requirement was that they had a history of heart failure (and did not come from long-term care or have a life-threatening illness). Therefore, it is plausible that the results of this research are generalizable to other patients throughout the Denver metropolitan area.

At this point it is unclear how generalizable these results will be in Colorado or nationwide. While heart failure affects many individuals nationwide, it is possible that some areas of the state or nation have higher rates of heart failure and more comorbidities than other areas. Another factor that may affect the generalizability of this research is that perhaps not all MA plans function the same or even operate in each state or region within Colorado. However, this research worked with a number of SNFs with varying MA plans and many of the insurance companies do operate throughout state and nationally (e.g. United Healthcare,

Blue Cross Blue Shield and Kaiser). Lastly, SNFs in other parts of the state or nation may have different characteristics than the SNFs in the Denver metropolitan area, including with respect to ownership and hospital affiliation status. None of the SNFs that participated in SNF Connect was hospital-based and only one was not-for-profit. This suggests that study results may be more generalizable to other stand-alone, for-profit SNFs throughout the state or country than hospital-affiliated, not-for-profit ones.

Qualitative Methods

Qualitative methods were used to further investigate *how the type of Medicare coverage – FFS v. MA – of patients with heart failure in SNF influences their skilled nursing care and in particular, their risk of rehospitalization*. Included in this section is the rationale for the qualitative portion of this research, sample selection including a general description of the SNF Connect study, the sampling strategy, a description of how the interview protocol was developed and how it was administered, and lastly, how the qualitative data were coded and analyzed.

Rationale for qualitative research

This research seeks to determine if the type of insurance a patient with heart failure in a SNF carries—MA or FFS Medicare--has an influence on their overall risk for rehospitalizations. The quantitative portion of the study focuses on answering this research question. It is limited, however, because the analyses can only identify whether or not an association between insurance type and rehospitalizations exists, but does not provide an understanding of the mechanisms underlying those results. For instance, the quantitative data cannot explain how exactly insurance type influences behavior (e.g. through financial

incentives, utilization review). Therefore, qualitative interviews with 23 key informants from 11 of the 29 SNFs that contributed to usual care data in the SNF Connect study were used to glean their perspective of if and how the type of insurance a patient carries influences rehospitalization risk. Separate interviews were requested with the administrator and director of nursing from the nursing homes because, as the highest ranking individuals at each SNF, they oversee business and medical facility operations, respectively. Pertinent substitutes were identified when neither the administrator and/or director of nursing was available (e.g. director of therapy, case managers). Multiple key informants offered their unique experiences and perspectives, thereby resulting in a better understanding of the phenomenon studied than if interviews with only one type of respondent were undertaken.

Each interview allowed me to explore how the mechanisms and payment incentives used by MA plans influence SNF behavior. As discussed in the literature review, MA plans use a variety of mechanisms to influence care and to determine the appropriateness and intensity of care, including selective contracting, case management, utilization review, and payment incentives (Altman et al., 2003; Bundorf et al., 2004; Cutler et al., 2000; Gaynor et al., 2001; Gold, 1999; Ma et al., 2002; Ma et al., 2002; Polsky et al., 2004; Wickizer et al., 2002). Therefore, the interviews aimed to discover interviewee perceptions' about whether and how the various mechanisms and payment incentives employed by MA plans influence SNFs' overall behavior and potential outcomes (such as rehospitalizations). Qualitative interviews were also used to shed light on the relationships between SNFs and MA plans more generally.

The interviews were particularly timely given that SNFs were about to face monetary penalties for potentially avoidable rehospitalizations in October 2018, under the SNF Value-Based Purchasing (SNF-VBP) program (Section 215), part of the Protecting Access to Medicare Act of 2014. All interviews were conducted prior to October 2018. With the forthcoming penalties under the SNF-VBP program, it was important to ask key SNF staff how they anticipated those changes would affect their overall care and finances. Under the SNF-VBP program, heart failure is one of the main potentially avoidable rehospitalization diagnoses for which SNFs are penalized. Given the focus of this research on heart failure care in SNFs, the interviews provided the opportunity to discuss aspects of care for patients with heart failure and how the changes under the SNF-VBP program might impact that care in the future.

Study setting

SNFs were selected as the unit of analysis for the qualitative portion of this research. SNFs provide post-acute care and rehabilitation to individuals who are too frail to go home following an acute-stay in a hospital (Allen et al., 2011; Dolansky et al., 2010). Research suggests that a variety of SNF characteristics can influence a patient's risk of rehospitalization, including overall staffing, quality of care, rates of rehospitalizations and other characteristics (e.g. ownership, chain affiliation, case mix, and size, admission volume and patient acuity) (AoA, 2012; America's Health Insurance Plans (AHIP), 2010a; Hutt et al., 2003; Lichman et al., 2010; Neuman et al., 2014; Rahman, Zinn & Mor, 2013; Rahman et al., 2016; Toles et al., 2014; Zimmerman et al., 2002). However, few studies have focused on how the type of insurance--FFS v. MA—a patient has might influence their risk of

rehospitalization from a SNF. Therefore, the qualitative portion of this research sought to discover from key informants at local SNFs in Colorado who participated in the SNF Connect study whether they saw insurance having an influence on the risk of rehospitalization and, if so, how.

The SNF Connect study focused on heart failure disease management in SNFs throughout the Denver metropolitan area. A total of 29 facilities enrolled at least one usual care participant in the study. Each SNF either that was approached or that offered to participate in SNF Connect saw the benefits of SNF-centered research and wanted to be a part of the study. Before the study began, SNF Connect staff met with key staff – administrators and directors of nursing – at local SNFs to describe the study and what it entailed – answering any questions and trying to minimize concerns. Perceived benefits expressed by SNF Connect staff to the SNFs included developing a competitive edge in the post-acute care market and using SNF Connect materials for advertising and marketing. At the completion of SNF Connect, SNF Connect also offered to provide heart failure education free of charge to SNF staff.

Despite SNF staffs' enthusiasm, some sites had more difficulty with recruitment than others (e.g. more patients with dementia, difficulty in obtaining proxy consents, fewer skilled admissions). In addition, although the study design did not require the involvement of SNF staff, enrollment would likely have been higher in facilities where staff encouraged it. Therefore, some SNFs have more usual care patients than others (see Table 4.3 for recruitment numbers from each of the 29 SNFs that participated in SNF Connect; facility names have been de-identified).

Table 4.3. Total Usual Care Recruitment from SNF Connect Study by SNF (excludes two participants who withdrew), n=340

Skilled Nursing Facility	Number of usual care participants recruited	Percentage of total usual care participants recruited from the facility
12	50	16.89%
8	45	15.20%
14	25	8.45%
11	24	8.11%
28	21	7.09%
7	18	6.08%
6	15	5.07%
5	15	5.07%
2	12	4.05%
15	11	3.72%
10	11	3.72%
3	11	3.72%
19	10	3.38%
27	9	3.04%
17	8	2.70%
21	7	2.36%
29	7	2.36%
24	6	2.03%
23	6	2.03%
25	5	1.69%
18	4	1.35%
20	4	1.35%
16	4	1.35%
22	3	1.01%
13	3	1.01%
9	2	0.68%
4	2	0.68%
1	1	0.34%
26	1	0.34%
Total	340	100.0%

Site selection

The 29 SNFs with at least one usual care patient enrolled in SNF Connect were all potential sites for the qualitative interviews. As previously described, the selection of 14 of the 29 SNFs was informed by previous literatures' results demonstrating that the ownership type (for-profit, non-profit or government), chain affiliation, size (e.g. number of Medicare-Medicaid beds), patient case-mix acuity, and overall star rating potentially influence a patient's risk of rehospitalization from a SNF (Kimball et al., 2018; Neuman et al., 2014; Ogunneye et al., 2015; Pandolfi et al., 2017; Rahman, Zinn & Mor, 2013; Toles et al., 2014; Unroe et al., 2012; Zimmerman et al., 2002). In addition, site selection was based on the proportion of Medicare beneficiaries in the SNF and the number of MA plans that each SNF contracts with. All information regarding the specific characteristics, information and ratings for each of the potentially participating SNFs was gathered from the Nursing Home Compare website, Brown University's Long-term Care Facts on Care in the US (LTCFocus) along with pertinent data (e.g. chain affiliation) from the SNF Connect "SNF Contact" Excel spreadsheet and from the SNFs themselves regarding the number of MA plans they contract with. Table 4.4 details each of the key SNF characteristics used to select SNFs for the qualitative interviews.

Table 4.4: Quota Sampling of SNFs in SNF Connect

SNF	Ownership For-profit=0, Non-profit=1, Government=2	Chain Affiliation No=0, Yes=1, Government=2	Number of Medicare- Medicaid certified beds	Proportion of Medicare beneficiaries served	Case Mix Acuity	Number of contracted MA plans (at least 1)	Overall Nursing Home Compare Star Rating
1	0	1	56	28.89	12.77	2	2.5
2	0	1	120	8.85	11.88	1	3
3	0	1	110	4.55	12.01	1	5
4	0	1	117	7.61	10.97	1	1
5	0	1	160	7.38	11.88	31	3.5
6	0	1	90	32.43	13.22	5	5
7	0	1	100	9.64	10.83	1	5
8	0	1	54	98.08	10.59	0	5
9	0	1	75	10.14	11.33	1	5
10	0	1	113	7.78	11.59	5	4
11	0	1	60	NA	NA	1	4.5
12	0	1	96	59.52	11.19	4	4.67
13	0	1	190	8.16	12.93	2	3.33
14	0	1	120	25.2	13.24	4	2.5
15	2	2	180	3.53	10.48	3	1.33
16	0	1	78	4.29	11.67	1	4.67
17	0	1	128	4.46	12.78	4	1.5

SNF	Ownership For-profit=0, Non-profit=1, Government=2	Chain Affiliation No=0, Yes=1, Government=2	Number of Medicare- Medicaid certified beds	Proportion of Medicare beneficiaries served	Case Mix Acuity	Number of contracted MA plans (at least 1)	Overall Nursing Home Compare Star Rating
18	0	1	86	4.92	11.30	3	3
19	0	1	35	22.58	10.92	4	4.67
20	1	1	93	2.41	12.33	1	4.67
21	0	1	54	8.7	12.59	4	5
22	0	1	170	2.61	13.99	5	1.5
23	0	1	240	12.28	13.54	4	5
24	0	1	166	36.84	12.24	7	4
25	0	1	120	29.63	12.33	5	4.5
26	0	1	118	10.84	13.42	5	4
27	0	1	120	41.27	12.66	4	4
28	0	1	108	21.74	9.95	5	3
29	0	1	96	NA	NA	4	2
Aver- age			112.17	19.05	12.02	3	3.74
Excluded – did not meet inclusion criteria (10% or more of Medicare beneficiaries served; at least 1 or more contracted MA plans)							

Review of the data indicated that many of the 29 SNFs served very few Medicare beneficiaries, with most of their revenue coming from long-term care Medicaid payments or private pay patients. Therefore, SNFs serving fewer than 10% of Medicare beneficiaries were excluded. With the exclusions, 15 SNFs remained. SNF 8 served a large proportion of Medicare beneficiaries (98.08%), but did not contract with any MA plans. Therefore, SNF 8 was excluded because staff from that SNF would not have been able to shed any light on the role of Medicare managed care in influencing SNF behavior. Overall, the remaining 14 SNFs varied in size, case mix acuity, number of MA contracts and overall star rating. I was unable to interview any individuals from three of the 14 pre-selected SNFs due to non-response. Therefore, a total of 11 SNFs provided key informant interviews for this study.

Sample

A combined purposive-snowball sampling strategy was used to select potential interview subjects from each of the 14 SNFs selected (Luborsky & Rubinstein, 1995). Contact was made with the administrator or director of nursing at each SNF (except for SNF 19 where my initial contact was with the business operations manager from a snowball referral). Initially, I requested the administrator and director of nursing's participation for the qualitative interviews, but made adjustments as to whom to interview based my contact's suggestions regarding the individuals most knowledgeable about the potential influence of insurance on the risk of rehospitalization. Thus, in some cases, I was referred to other individuals besides the administrator or director of nursing to interview.

Participants were originally recruited using email (see Appendix B for the draft text). I first introduced myself as a member of the SNF Connect study staff that was conducted in

their SNF, reminded them of the study's purpose, and reiterated their valuable contribution to the study. I then described my background, my dissertation focus, and the dissertation's ties to the SNF Connect study. I then asked them for their participation in the qualitative interviews, stressing that all information collected during the interviews would be kept confidential (both the SNF name and their individual identities). If two attempts were made with no response, I made phone calls (up to 3 attempts) to the individuals to try to determine interest in participation. If I could not reach an individual after multiple attempts or if they were unavailable, I asked Dr. Rebecca Boxer (committee member who has connections within the Denver SNF community) if there was another individual within the facility who could serve as a potential interviewee. Based upon her referrals, the same methods of contacting those individuals were used. Originally, the goal was to conduct 28 interviews from 14 SNFs. Of 35 individuals contacted, 23 individuals at 11 SNFs agreed to participate in an interview.

Qualitative data was thus collected through semi-structured interviews with key stakeholders from 11 SNFs in the Denver metropolitan area that participated in the SNF Connect clinical trial. Key stakeholders included seven directors of nursing, six administrators, two admissions coordinators, two social workers, two directors of rehabilitation, a community liaison, a business operations manager, and a corporate-level executive. The original plan was to interview the administrator and director of nursing from each of the selected SNFs. However, only three SNFs provided both their administrator and director of nursing for the interviews. Of note, the number of individuals interviewed at each SNF varied from one to 5 individuals. To summarize, five individuals were interviewed at

one SNF, three at one SNF, two individuals from six SNFs and one individual at three SNFs. SNF 6 was an outlier in that I interviewed a total of 5 individuals. SNF 6 has been particularly interested in participating in research and was one of the first SNFs to agree to participate in SNF Connect. Their administrator was very encouraging of others to participate in the interviews and my personal connection with their staff helped me to gain access to a larger number of staff members for interviews. Table 4.5 shows the number of individuals interviewed from each of the 11 participating SNFs as well as a breakdown of participants' roles.

Table 4.5: Number of Interviewees from Participating Skilled Nursing Facilities

Interviewee Type	SNF 1	SNF 6	SNF 9	SNF 11	SNF 12	SNF 14	SNF 19	SNF 23	SNF 24	SNF 28	SNF 29	Total
Director of Nursing			1	1	1	1		1	1	1		7
Administrator	1	1	1	1					1		1	6
Social Worker		1				1				1		3
Director of Rehabilitation		1									1	2
Director of Admissions		1							1			2
Community Liaison							1					1
Business Operations Manager							1					1
Corporate-level Executive		1										1
Total	1	5	2	2	1	2	2	1	3	2	2	23

Following completion of the 23 interviews, I reached saturation, which is the point at which there is no new information obtained from the qualitative interviews and further coding of the interviews is exhausted (also referred to as data adequacy) (Fusch & Ness, 2015; Morse, 1995; Walker, 2012). Use of a purposive-snowball sampling approach in identifying individuals to interview within the selected facilities was effective in providing diverse perspectives on the topics raised (Glaser & Strauss, 1967; Jick, 1979; Pothas & de Wet, 2000).

Interview protocol

Separate interviews with the administrator and director of nursing (or others based on snowball sampling) at each SNF elicited information on their experiences and perspectives on how insurance may influence a SNF patient's risk of rehospitalization in the Denver metropolitan area. In qualitative interviews, it is important for the researcher to initially ask open-ended questions (Sofaer, 1999). As the interview continues, the questions can become more specific (while remaining open-ended) to further probe and prompt for more information (Sofaer, 1999). A semi-structured interview guide (see Appendix C) ensured that the same topics were addressed across SNFs to provide a comprehensive picture of the hypothesized relationship between insurance type and rehospitalizations. The semi-structured nature of the interview guide allowed me to probe and prompt further into particular issues or topics in greater depth depending on the direction of the interview or the experience/background of the interviewees.

An initial interview guide was developed based upon the conceptual framework and information uncovered through the literature review, including the impact of managed care

on SNFs (i.e., mechanisms of control, payments and contracts); the care of patients with heart failure in SNFs; what they perceive to be the reasons for rehospitalizations; if they see a relationship between insurance type and rehospitalizations; and lastly, their perspectives of how the penalties under PAMA's SNF-VBP program will impact their overall care of their patients. The interview protocol was subsequently refined after testing the protocol with the Vice President of Business Development from the American Association of Directors of Nursing Services. This individual previously served for seven years as the director of nursing of one of the SNFs that participated in the SNF Connect clinical trial and was very open to assisting me in the refinement of the interview protocol. Piloting the protocol allowed me to gain valuable feedback on what worked, what did not work, if important information was omitted, as well as what components might be deemed repetitive. Based upon the feedback provided, as well as my own observations, I made all necessary changes and adjustments. The final interview protocol was approved by the chairs of my dissertation committee and overseeing institutional review boards (IRBs) (The Colorado Multiple Institutional Review Board (COMIRB) and the University of Massachusetts Boston IRB - to be discussed in more detail below).

Interview logistics

Interviews were conducted from May 11, 2018 through June 22, 2018. All interviews were conducted in-person with the exception of two that were done over the phone due to time and distance considerations (6_B Social Worker and 6_C Director of Operations). All interviews were recorded using two digital recording devices in case one of the devices failed. Notes were taken during the interviews to help with recall and to inform preliminary

data analysis. Each interviewee was assigned a code to maintain confidentiality, which corresponded to each of the 11 participating SNFs. The first interview conducted at each site was coded as “A” and the second interview coded as “B”, etc. Therefore, for example, the first interview for SNF 4 was coded as 4_A and the second as 4_B.

COMIRB decided that a signed consent form was not required of participants, but required that all interviewees be given a postcard consent form to review (see Appendix D). Prior to each in-person interview, I gave each interviewee a physical copy of the postcard consent form for their review and for their records. Individuals interviewed over the phone were emailed a copy of the consent form prior to the interview. All questions about the forthcoming interview were answered prior to verbal consent and the participants were given adequate time to read the consent form, ask questions and consider whether or not to be involved in the study. Verbal consent was requested from all interviewees prior to beginning the interview. All interviews were audio recorded and later transcribed using VerbaLink, a professional transcription service. To confirm accuracy of the transcriptions, I listened to each audio recording of the interviews and cross-checked them to ensure accuracy.

Data analysis

Data for this study were gathered from the 23 in-depth interviews conducted in the 11 selected SNFs. The coding and analysis of the interview transcripts was both deductive and inductive (Creswell & Poth, 2018). The deductive coding of the transcripts was directed by an initial coding scheme derived from the literature review, conceptual framework, and interview guide. The process of coding was also inductive in that new codes were developed based on review of the transcripts, which elicited additional categories, themes, and

subthemes. Codes were thus initially developed *a priori* from the conceptual framework and literature review, as organized by the interview guide. These initial codes reflected the format of the interview guide, addressing the impact of insurance type on rehospitalizations, the care of patients with heart failure in SNFs, perceived reasons for rehospitalizations, and perceptions of how penalties under PAMA will impact the overall care of SNF patients. The inductive aspect of the coding process came in the form of modifications and additions to the initial coding scheme as the transcripts were analyzed (Miller, Gidmark, Gadbois, Rudolph, & Intrator, 2017). NVivo 12 was used to code and analyze the data (NVivo, 2018).

Double-coding was used in the analysis of six randomly selected transcripts to develop the codebook. The double-coder was a PhD candidate at the University of Colorado. We independently coded with the *a priori* codebook to analyze each of the six transcripts, meeting regularly and iteratively revising the codebook. We coded the first transcript separately and then met to review how we each coded that transcript. A consensus was reached, and we then coded another two transcripts. We then met again to review the coding of those transcripts to inductively revise the codebook as necessary. The last three transcripts were analyzed and a final codebook was developed. The final codebook developed from six double-coded transcripts was then used by myself to review the remaining 17 transcripts. During the analysis of the remaining transcripts, new coding schemes were developed. Following completion of reading and coding all 23 transcripts, I reorganized the coding scheme by merging and deleting codes that were unnecessary or duplicative. All transcripts were then reviewed again using the finalized codebook to ensure accuracy.

Following both the deductive and inductive review of the 23 transcripts, a final coding scheme was developed (see Appendix E). One of the major coding changes was adding codes that compared FFS and MA. This comparison was not in the original interview protocol, but was brought up organically by many interviewees. Other codes that were added included discussions of Kaiser Permanente as its own entity that had separate requirements and mechanisms of control that differed from other MA plans in general. One of the main groups of preliminary codes that I removed was related to accountable care organizations and bundled payments as many of these codes were redundant to that of MA plan mechanisms identified. For example, interviewees described how bundled payment plans and ACOs require case management, do not offer financial incentives and typically have short lengths of SNF stays similar to that of MA plans.

Key themes and sub-themes were developed using the final coding scheme derived from review of all 23 transcripts. Using NVivo 12, reports were run by facility type (stand-alone SNF and LTC) to provide an overview of the main categories, codes and quotes. This was done to see if there were differences in codes, themes and sub-themes based on facility type. The reports also allowed for analysis of whether or not there were patterns in which certain SNF staff members (e.g., administrators versus directors of nursing) were stating common answers to the interview questions. The reports were then used to identify main themes with subsequent level one and level two subthemes (when appropriate) all of which provided the narrative for the final analysis (presented in Chapter 6). For example, the codes for “comorbidities”, “hard to control patients’ behavior” and “medical instability” were each identified as level two subthemes under the level one subtheme of “challenges in caring for

patients with heart failure”. These sub themes were then used to describe the broader theme of “heart failure”. This information helped to provide an overview of why heart failure is one of the leading causes of potentially avoidable rehospitalizations. Patients with heart failure present SNFs with a unique challenge in trying to keep them from requiring a rehospitalization and in avoiding potential financial penalties under SNF-VBP.

Rigor: Credibility, confirmability, transferability and dependability

Qualitative research is often criticized as being anecdotal and biased; thus, this section will discuss measures taken in this research to assure credibility, confirmability, transferability and dependability of the data and analysis (Anderson, 2010; Leung, 2015). Quantitative criteria used to determine internal and external validity, reliability and objectivity often do not apply in qualitative research. Therefore, qualitative researchers have developed alternative criteria to judge qualitative research akin to quantitative criteria; in particular, credibility ~ internal validity, transferability ~ external validity, dependability ~ reliability, and confirmability ~ objectivity (Trochim, 2006). Each of the four qualitative criteria will be defined in the following paragraphs as well as their application to this research.

Credibility in qualitative research is used to ensure that the results are believable and verifiable by study participants (e.g. interviewees) (Schoenberg, Miller & Pruchno, 2011; Trochim, 2006). Triangulation is a key way to ensure that the credibility of the qualitative data is established. Carter, Byrant-Lukosius, DiCenso, Blythe and Neville (2014) define four key types of triangulation: method, investigator, theory, and data source. Method triangulation involves the use of multiple methods of data collection (Carter et al., 2014).

This research used both quantitative and qualitative data as well as multiple interviews of various key informants from differing roles from 11 SNFs. Investigator triangulation requires the use of multiple investigators to verify the qualitative research and results (Carter et al., 2014). In this case, I was the principal investigator for this research with the guidance of my dissertation committee members. In addition, another PhD candidate at the University of Colorado Denver acted as the second coder for the qualitative interviews to help corroborate the themes and subthemes generated. Theory triangulation is when multiple theories or hypotheses are used to verify or refute results (Carter et al., 2014). Two theories -- Resource Dependence Theory and Principal-Agent Theory -- together with extant empirical work informed development of the conceptual framework and hypotheses for this research. The framework, in turn, guided my analysis. Lastly, the use of multiple data sources including individuals from different backgrounds or experience can help to triangulate the data (Carter, 2014). For this research, I conducted separate interviews with administrators, directors of nursing, admissions coordinators, social workers, physical therapy directors, a community liaison, a business operations manager, and a corporate-level executive. With the various backgrounds, I was able to gain the unique perspective from a number of knowledgeable professionals working in this area from 11 SNFs. In addition, the 11 SNFs were selected based on a variety of criteria including size, case mix acuity, number of MA plans, and overall star rating, thereby broadening the backgrounds and experiences of the key informants interviewed.

Confirmability of qualitative data is necessary to ensure that results can be corroborated and that the researcher does not impose their own bias on the results (Carter,

2014). To account for confirmability, all interview transcripts transcribed by VerbaLink were double-checked by myself to confirm accuracy. A description of the ways in which the transcripts were coded, refined, modified and finalized was previously presented. Carter (2014) also expresses the necessity for researchers to report negative results that may counter the hypotheses. Reporting results that disconfirm proposed hypotheses is important to ensure that bias has not clouded analysis of the data. Results, both consistent and counter to my initial expectations, are reported.

Unlike quantitative data, it is difficult for qualitative research to demonstrate that findings are generalizable to other situations. For example, this research used a relatively small number of qualitative interviews with SNFs in the Denver metropolitan area and it may be difficult to generalize the results to other areas or regions given the specific nature of the Denver market (Carter, 2014; Schoenberg et al., 2011; Shenton, 2004). Thus, qualitative researchers seek to demonstrate transferability, or providing a rich description of the study so that other researchers can understand the results and make the determination of whether or not they apply to the context with which their own research takes place (Bassey, 1981; Lincoln & Guba, 1985; Shenton, 2004). Aspects of this research may be transferable to other SNFs throughout the country: SNFs nationwide must contract with and work with MA plans to maintain adequate sources of funding and are therefore likely to employ similar mechanisms (e.g., utilization management, financial penalties) to influence SNF behavior. In addition, many SNFs around the country are structured similarly to those in the Denver marketplace (outside of hospital-based facilities, which were not included in this research). Therefore, some of the findings from the qualitative component of this study may be

transferable to other SNFs nationwide. Determining the extent to which findings may be transferable is aided by the interview protocol, which aims to produce a thick description of the context of the Denver metropolitan area SNFs, and should provide sufficient information regarding the Denver SNF marketplace to allow future researchers to decide whether or not the study results are transferable to other contexts.

Dependability, the final criteria used to judge qualitative research, is defined as the ability for the research to be replicated (Schoenberg et al., 2011). A critical component of this is documenting the procedures used to gather data from the transcripts and the decisions used to develop the coding scheme (Schoenberg et al., 2011). As described earlier, I reviewed the interview transcripts multiple times to confirm, revise and finalize the coding scheme used for the qualitative portion of this research. In addition, I used a second coder to help corroborate the results of the coding process. All coding was documented in a coding manual and reviewed by my committee members to ensure that the findings are dependable based on the measures used to code and review the interviews.

IRB approval

This research dealt with human subjects and potentially sensitive information (both in the quantitative and qualitative portions); therefore, it was necessary to receive IRB approval before beginning the study. The SNF Connect study had already gone through full board review with the Colorado Multiple Institutional Review Board (COMIRB); the quantitative component of the present study qualified as a sub-study under that full board review. Because I used the SNF Connect quantitative data as a University of Massachusetts Boston (UMB) agent, UMB agreed to rely on COMIRB for approval of the study as confirmed by

the UMB IRB. An IRB Authorization Agreement was signed by both COMIRB and UMB's IRB on May 17th, 2018. Susan Wang, the Senior IRB Administrator at UMB, confirmed receipt of the signed agreement on June 4th, 2018. This circumvented the need for a data use agreement between the University of Colorado Denver and UMB. The qualitative component of this study was submitted as an expedited IRB protocol separate from the quantitative component to the University of Colorado Denver's IRB. UMB agreed to rely on the COMIRB IRB with respect to its own approval of the qualitative portion of this research as well. Initial IRB approval for the qualitative component of this research was made on March 30, 2018 with a continuing review approved on February 19, 2019.

The quantitative portion of this research had few risks, but for the potential loss of confidentiality. All personal information of the participants in the SNF Connect study was kept separate from the data. Each participant was assigned a unique study ID that maintained confidentiality. However, that study ID could possibly be matched back to the participants. Therefore, all efforts were made to ensure that all quantitative data remained confidential and that no personal identifiers were used in the analysis.

The qualitative aspect of this research differed from the quantitative research in that additional measures were taken to assure the IRB of data confidentiality. The nature of the interviews had the potential to unintentionally identify participating SNFs and interviewees, but all efforts were made to de-identify the information received during the interviews and to secure the identities of all participants. For example, any organization names as well as any gender identifiers were removed from the transcripts. Interviews were transcribed by an outside professional transcription vendor, VerbaLink, using Microsoft Word and the files

saved using the numbers assigned to the SNF interviews. The identity of the SNFs and interviewees was only known to me. All interview transcripts were saved as an encrypted file on a secured server with the University of Colorado Denver. All paper documents (primarily field notes) obtained from the interviews were saved in a locked file cabinet with the key only available to myself. Both the interview guide (Appendix C) and the consent form (Appendix D) were reviewed and approved by the IRB prior to conducting any of the qualitative interviews. It was not anticipated that any questions asked during the interview could lead to the risk of loss of employment. No associated benefits to participating in the qualitative interviews were anticipated either.

CHAPTER 5

QUANTITATIVE RESULTS

This chapter includes the results of an examination of the relationship between insurance type and risk for rehospitalization within 30 days post-hospital discharge to a skilled nursing facility (SNF). The chapter is divided into three sections addressing each of the three questions for this research as discussed previously in the Methods Section (Chapter 4).

- Research Question #1: *Do the personal characteristics of SNF patients with heart failure with Medicare Advantage (MA) coverage differ from SNF patients with heart failure enrolled in Fee-for-Service (FFS) Medicare?*
- Research Question #2: *Do SNF patients with heart failure with MA coverage have lower rates of rehospitalization 30 days post-hospital discharge to a SNF compared to SNF patients with heart failure enrolled in FFS Medicare?*
- Research Question #3: *Do SNF patients with heart failure with MA coverage have a lower likelihood of rehospitalization compared to SNF patients with heart*

failure enrolled in FFS Medicare, after adjusting for and matching individual-level and facility-level factors?

The chapter begins by presenting descriptive statistics for all study variables. This is followed by presentation of bivariate and multivariate regression analyses examining differences in personal characteristics by Medicare plan type (Research Question #1). Next, the chapter reports bivariate and multivariate regression results used to examine the relationship between MA coverage and rehospitalization among SNF patients with heart failure (Research Questions #2 and #3).

Descriptive Statistics

This section reports participant-level descriptive statistics and care trajectories. It also present SNF-level descriptive statistics.

Participant-level descriptives

Descriptive statistics (mean (standard deviation, range) and percentages) for participant-level data are presented in Table 5.1. The sample included 333 middle-aged and older adults ranging in age from 47 to 99 years ($M=78.46$, $SD=10.05$). The majority of participants were female (55.6%) and Non-Hispanic White (86.2%) with the remaining racial breakdown as follows: Hispanic (6.3%), Black/African American Non-Hispanic (6.3%) and Asian/other Non-Hispanic (1.2%). Due to the relatively low number of non-White individuals, the race/ethnicity variable was recoded as White (86.2%) vs Non-White (13.8%). Participants had an average education of 14.29 years ($SD=2.86$, range=3-23). The majority of

participants were enrolled in Fee-for-Service Medicare (61.9%) at the time of SNF admission; fewer in Medicare Advantage (38.1%).

In terms of overall health, the average Charlson Comorbidity Index (CCI) score was 3.10 (SD=1.57, range=1-10). The majority of participants had heart failure with a preserved ejection fraction (71.4%). Forty percent of participants had experienced two or more hospital admissions in the previous 12 months prior to their SNF admission (not including their admitting hospitalization); 27.2% had one hospital admission and 32.7% had zero. Fifty-four (53.7%) percent of participants had not visited an emergency room (ER) in the previous 12 months prior to their SNF admission, 23.6% had one ER visit and 22.7% had two or more visits. The average length of SNF stay among participants was 21.14 days (SD=11.99, range=2-73). Length of SNF stay was later transformed for analysis to reduce skew by using the square root of the variable.

Participant care trajectories

In all, 24% of participants were rehospitalized within 30 days post-hospital discharge to a SNF (18% were admitted back to the hospital from the SNF and 6% were discharged home from the SNF and later went to the hospital; see Table 5.1). Of those who experienced a rehospitalization within 30 days of hospital discharge to a SNF, 34% were determined by the Clinical Endpoints Committee to be heart failure-related, 19% cardiovascular-related (other than heart failure) and 47% other related. The majority (59%) of participants were discharged from the SNF to their home within 30 days post-hospital discharge to a SNF.

Seventeen percent of individuals were still in the SNF 30 days post-hospital discharge to a SNF.

The care trajectory and reason for rehospitalization variables and statistics are reported here to provide background but were not otherwise incorporated into the analyses (care trajectory was included in the GEE analysis for research question 1). Disposition post-hospital discharge to a SNF was not included because it would have been highly correlated with the dependent variable in analyses examining whether or not a patient was rehospitalized within 30 days. The reason for rehospitalization was not included in the analyses for policy reasons. The penalties under the PAMA SNF-VBP program focus on all-cause rather than potentially preventable rehospitalizations, making the reason for rehospitalization less important from a policy vantage point.

SNF-level descriptives

Most of the 29 SNFs who participated in this research (and had usual care participants) were for-profit (95.5%) and chain-affiliated (96.7%) (this data was not included in the regression analyses as there was too few SNFs that were non-profit, government operated or non-chain affiliated – data is presented here just for description). The average number of Medicare-Medicaid certified beds was 101.68 (SD=40.07, range=35-240). The average patient case-mix acuity was 11.59% (SD=1.04%, range=10-14) and the proportion of Medicare beneficiaries served 34.97% (SD=31.94%, range=2-98). SNFs contracted with an average of 4.14 MA plans (SD=6.13, range=0-31). The number of contracted MA plans was transformed for analysis because of significant skew using logarithmic transformation. The

average star ratings (from 2015-2017) were as follows: Overall Star Rating (Mean=4.11, SD=1.04, range=1-5); Health Inspection Star Rating (Mean=3.21, SD=1.10, range=1-5); Staffing Star Rating (Mean=4.36, SD=0.54, range=1-5); and Quality of Resident Care Star Rating (Mean=4.12, SD=1.13, range=1-5). Both the Staffing Star Rating and the Quality of Resident Care Star Rating variables were skewed and thus were transformed using logarithmic transformation for analysis.

Under the IMPACT Act's SNF Quality Reporting Program, SNFs are now required to submit to CMS their rates of rehospitalizations within 30-days of SNF admission. From April 2018 through March 2019, the average number of patients experiencing a rehospitalization within 30 days of SNF admission to the 28 SNFs was 19.75% (SD=5.41, range=4.60-27.10) (of note, one facility did not have data on the percentage of rehospitalizations). The Colorado average of rehospitalizations within 30 days of SNF admission was 19.2% and the national average was 22.2% (Nursing Home Compare, n.d.). Following implementation of the PAMA SNF VBP, 59% of the SNFs in this sample were penalized for 30-day rehospitalizations for fiscal year 2019 (October 2018-September 2019), with an average adjustment to the reimbursement rate by CMS of -0.42% (SD=1.50%, range= -1.98% – 1.65%). The percentage of patients rehospitalized and the bonuses/penalties data are presented descriptively, but were not included in the analysis for this research as the data was not collected during the same timeframe as the SNF Connect trial.

Table 5.1: Bivariate Analyses Crosstabs/Pearson Chi-square Tests (Bivariate Analyses) & T-tests/Spearman – Comparison of Independent Variables by Insurance Type (Research Question 1)

Variable	Fee-for-Service (n=206, 61.9%) N (%)	Medicare Advantage (n=127, 38.1%) N (%)	Full Sample (n=333) N (%)	FES v MA <i>t(df) or Chi-Square</i>	P-value
Age, Mean (SD) Min-Max	78.45 (±9.48)	78.48 (±10.95)	78.46 (±10.05) 47-99	-.023 (238.00)	.981
Sex					
Female	107 (51.9%)	78 (61.4%)	185 (55.6%)	2.857 (1)	.091
Male	99 (48.1%)	49 (38.6%)	148 (44.4%)		
Race (used for descriptives)					
White	181 (87.9%)	106 (83.5%)	287 (86.2%)	1.413 (3)	.702
Black/African American	11 (5.3%)	10 (7.9%)	21 (6.3%)		
Hispanic	12 (5.8%)	9 (7.1%)	21 (6.3%)		
Asian/Other	2 (1.0%)	2 (1.6%)	4 (1.2%)		
Race/Ethnicity (used for bivariate analysis and regressions)					
White	182 (88.3%)	105 (82.7%)	287 (86.2%)	2.123 (1)	.145
Non-White	24 (11.7%)	22 (17.3%)	46 (13.8%)		
Education, Mean (SD) Min-Max	14.46 (±2.82)	14.02 (±2.92)	14.29 (±2.86) 3-23	1.377 (329)	.170
Type of Heart Failure					
HFpEF	144 (72.0%)	86 (70.5%)	230 (71.4%)	.084 (1)	.771
HFrEF	56 (28.0%)	36 (29.5%)	92 (28.6%)		
Charlson Comorbidity Index Score (CCI), Mean (SD) Min-Max	3.06 (±1.59)	3.16 (±1.53)	3.10 (±1.57) 1-10	-.559 (330)	.577
Number of Hospitalizations in Previous 12 Months					
0	65 (33.5%)	38 (31.4%)	103 (32.7%)	.158 (2)	.924
1	52 (26.8%)	34 (28.1%)	86 (27.2%)		
2+	77 (39.7%)	49 (40.5%)	126 (40.0%)		

Variable	Fee-for-Service (n=206, 61.9%)	Medicare Advantage (n=127, 38.1%)	Full Sample (n=333)	FFS v MA <i>t(df) or Chi-Square</i>	P-value
Number of Emergency Room Visits in Previous 12 Months					
0	100 (51.8%)	68 (56.7%)	168 (53.7%)	735 (2)	.693
1	48 (24.9)	26 (21.7%)	74 (23.6%)		
2+	45 (23.3%)	26 (21.7%)	71 (22.7%)		
Length of SNF Stay, Mean (SD) Min-Max	21.91 (±12.20)	19.90 (±11.57)	21.14(±11.99) 2-73	1.493 (331)	.136
Length of SNF Stay Transformed, Mean (SD) Min-Max	4.52 (±1.24)	4.31 (±1.16)	4.44 (±1.21) 1.41-8.54	1.523 (331)	.129
Care Trajectory 30 Days Post Hospital Discharge to SNF					
Hospital to SNF (Still in SNF at 30 days)	42 (20.4%)	16 (12.6%)	58 (17.4%)	3.315 (1)	.069
Hospital to SNF to Home	110 (53.4%)	86 (67.7%)	196 (58.9%)	6.652 (1)**	.010
Hospital to SNF to Home to Hospital	16 (7.8%)	4 (3.1%)	20 (6.0%)	2.967 (1)	.085
Hospital to SNF to Hospital	38 (18.4%)	21 (16.5%)	59 (17.7%)	.197 (1)	.657
SNF Level Variables					
Number of Medicare-Medicaid Certified Beds, Mean (SD) Min-Max	99.13 (±43.05)	105.83 (±34.45)	101.68 (±40.07) 35-240	-1.487 (331)	.138
Patient Case Mix Acuity, Mean (SD) Min-Max	11.44 (±1.01)	11.85 (±1.05)	11.59 (±1.04) 10-14	-3.403 (300)**	.001
Percent Medicare, Mean (SD) Min-Max	43.82 (±34.68)	19.95 (±18.86)	34.97 (±31.94) 2-98	7.742 (298.348)***	.000
Number of MA plans, Mean (SD) Min-Max	3.41 (±4.78)	5.32 (±7.72)	4.14 (±6.13) 0-31	-2.509 (186.206)*	.013
Number of MA Plans Transformed, Mean (SD) Mix-Max	0.51 (±0.34)	0.64 (±0.33)	0.56 (±0.34) 0.00-1.51	-3.565 (273.084)***	.000

Variable	Fee-for-Service (n=206, 61.9%)	Medicare Advantage (n=127, 38.1%)	Full Sample (n=333)	FFS v MA <i>t(df)</i> or <i>Chi-Square</i>	P-value
Average Overall Star Rating, Mean (SD) Min-Max	4.26 (±1.06)	3.87 (±1.13)	4.11 (±1.04) 1-5	3.137 (324)**	.002
Average Health Inspection Star Rating, Mean (SD) Min-Max	3.41 (±1.09)	2.89 (±1.05)	3.21 (±1.10) 1-5	4.245 (324)***	.000
Average Staffing Star Rating, Mean (SD) Min-Max	4.41 (±0.48)	4.29 (±0.62)	4.36 (±0.54) 1-5	1.792 (217.792)	.074
Average Staffing Star Rating Transformed, Mean (SD) Min-Max	1.97 (±0.28)	1.92 (±0.34)	1.95 (±0.31) 1.00-2.39	1.393 (226.245)	.165
Average Quality of Resident Care Star Rating, Mean (SD) Min-Max	4.25 (±1.10)	3.90 (±1.14)	4.12 (±1.13) 1-5	2.736 (324)**	.007
Average Quality of Resident Care Star Rating Transformed, Mean (SD) Min-Max	2.20 (±0.50)	2.01 (±0.52)	2.12 (±0.51) 1.00-2.61	3.270 (324)**	.001
*p<.05, **p<.01, ***p<.001					

Research Question #1

Bivariate analyses

The bivariate relationships between type of insurance (MA vs. FFS) and the covariates are presented next, using cross-tabulations/Pearson Chi-Square tests and t-tests. When comparing the type of insurance (MA vs. FFS) to the covariates, none of the patient-level variables showed statistical significance between MA vs. FFS enrollment, suggesting few demographic or health differences between the two types of patients (FFS vs. MA members) (see Table 5.1). In terms of care trajectories post-hospital discharge to SNF, 68% of MA members were discharged home from the SNF within 30 days of their SNF admission compared to 53% of FFS beneficiaries ($p=0.010$).

Several SNF-level variables were significantly related to MA versus FFS enrollment. MA members were more likely than FFS beneficiaries to receive treatment at a SNF with a higher patient acuity case mix (11.85 vs. 11.44, $p=0.001$) and with more MA contracted insurance plans (0.64 vs. 0.51 $p<0.001$). FFS beneficiaries were more likely than MA members to go to SNFs serving a higher percentage of Medicare beneficiaries (43.82 vs. 19.95, $p<0.001$). FFS beneficiaries were also more likely than MA members to go to SNFs with higher star ratings, including the Overall Star Rating (4.26 vs. 3.87, $p=0.002$), Health Inspection Star Rating (3.41 vs. 2.89, $p<0.001$), and Quality of Resident Care Star Rating (2.20 vs. 2.01, $p=0.001$).

Generalized estimating equations analysis

Generalized estimating equations (GEE) analysis was used to account for the nesting of patient-level variables within the 29 SNFs and to discern any differences in the personal characteristics of SNF patients with heart failure with MA coverage compared to patients with heart failure with FFS Medicare. None of the individual-level variables predicted insurance type (FFS vs. MA) (see Table 5.2). However, a few SNF-level variables were significantly associated with type of insurance coverage. In the model with overall star rating, for every increase in the number of Medicare-Medicaid certified beds and the percent of Medicare beneficiaries served, FFS beneficiaries were more likely to receive care in a SNF ($B = -0.012$, $p = 0.031$; $B = -0.028$, $p < 0.001$). For the model including the three star ratings (health inspection, staffing and quality of resident care), the results were similar in that for every increase in the number of Medicare beneficiaries served, FFS beneficiaries were more likely to receive care ($B = -0.029$, $p < 0.001$). However, the number of Medicare-Medicaid certified beds was not significant in this model.

Table 5.2. Generalized Estimating Equation (GEE) Regressions for Research Questions 1 and 3, n=333

Variable	Research Question 1 Insurance Type (FFS=0, MA=1)	Research Question 1 Insurance Type (FFS=0, MA=1)	Research Question 3 Rehospitalization within 30 Days of SNF Admission	Research Question 3 Rehospitalization within 30 Days of SNF Admission
	B(SE) 95% [CI]	B(SE) 95% [CI]	B(SE) 95% [CI]	B(SE) 95% [CI]
Medicare Advantage Coverage	--	--	-0.305(0.2659) [-0.827-0.216]	-0.375(0.2541) [-0.873-0.124]
Age (years)	-0.002(0.0142) [-0.030-0.026]	-0.004(0.0144) [-0.032-0.025]	-0.004(0.0146) [-0.032-0.025]	-0.002(0.0155) [-0.032-0.029]
Education (years)	-0.044(0.0575) [-0.156-0.069]	-0.041(0.0568) [-0.152 - 0.070]	-0.028(0.0573) [-0.140-0.084]	-0.045(0.0600) [-0.162-0.073]
Female	0.425(0.2363) [-0.038-0.888]	0.414(0.2460) [-0.068-0.896]	-0.426(0.3270) [-1.067-0.215]	-0.454(0.3431) [-1.126-0.219]
Non-White	0.389(0.3514) [-0.300-1.078]	0.409(0.3464) [-0.270-1.088]	-0.032(0.4940) [-1.001-0.936]	-0.071(0.4669) [-0.986-0.844]
Length of SNF Stay (days)	0.055(0.1931) [-0.323-0.434]	0.054(0.1937) [-0.325-0.434]	-0.809(0.0971) [-1.000--0.619]***	-0.846(0.1070) [-1.056--0.636]***
Charlson Comorbidity Index (continuous)	0.006(0.0846) [-0.160-0.172]	0.006(0.0854) [-0.161-0.174]	0.003(0.0720) [-0.138-0.144]	-0.003(0.0740) [-0.148-0.142]
Heart Failure with Preserved Ejection Fraction (HFpEF)	0.202(0.2298) [-0.250-0.653]	0.221(0.2326) [-0.235-0.678]	-0.194(0.3432) [-0.867- 0.479]	-0.024(0.3450) [-0.720-0.653]
One Hospital Admission in Previous 12 Months Prior to SNF Admission (excluding admitting hospitalization)	0.098(0.3957) [-0.681-0.876]	0.146(0.3989) [-0.641-0.934]	-0.148(0.3935) [-0.921-0.626]	-0.070(0.4004) [-0.858-0.718]
Two or More Hospital Admissions in Previous 12 Months Prior to SNF Admissions (excluding admitting hospitalization)	0.197(0.3000) [-0.400-0.794]	0.229(0.3141) [-0.399-0.857]	0.701(0.3580) [-0.002-1.405]	0.740(0.3653) [0.022-1.458]*
One Emergency Room Visit in Previous 12 Months Prior to SNF Admission	-0.420(0.3023) [-1.016-0.176]	-0.451(0.3313) [-1.108-0.205]	-0.423(0.4123) [-1.232-0.386]	-0.543(0.4379) [-1.405-0.318]
Two or More Emergency Room Visit in Previous 12 Months Prior to SNF Admission	-0.255(0.5114) [-1.262-0.751]	-0.263(0.5287) [-1.304-0.777]	0.239(0.2907) [-0.332-0.810]	0.166(0.3047) [-0.434-0.767]

Variable	Research Question 1 Insurance Type (FFS=0, MA=1)	Research Question 1 Insurance Type (FFS=0, MA=1)	Research Question 3 Rehospitalization within 30 Days of SNF Admission	Research Question 3 Rehospitalization within 30 Days of SNF Admission
Hospital to SNF to Home	1.077(0.6350) [-0.168-2.322]	1.051(0.6427) [-0.209-2.311]	--	--
Hospital to SNF to Home to Hospital	-0.346(0.7427) [-1.802-1.110]	-0.475(0.7557) [-1.958-1.008]	--	--
Hospital to SNF to Hospital	1.049(0.6394) [-0.205-2.302]	1.007(0.6554) [-0.278-2.293]	--	--
Number of Medicare-Medicaid Certified Beds	-0.012(0.0056) [-0.023-0.001]*	-0.010(0.0062) [-0.022-0.002]	0.002(0.0027) [-0.003-0.007]	0.003(0.0034) [-0.005-0.008]
Percent of Medicare Beneficiaries	-0.028(0.0073) [-0.042--0.013]***	-0.029(0.0077) [-0.044-0.014]***	0.005(0.0056) [-0.006-0.017]	0.005(0.0058) [-0.007-0.017]
Patient Acuity Case Mix	0.278(0.1009) [0.080-0.476]**	0.322(0.1777) [-0.027-0.670]	0.151(0.1446) [-0.139-0.440]	-0.170(0.1962) [-0.564- -0.225]
Number of Contracted MA Plans	0.693(0.4245) [-0.139-1.525]	0.476(0.4883) [-0.481-1.433]	-1.047(0.4374) [-1.904- -0.190]*	-0.770(0.3923) [-1.539- -0.001]*
Average Overall Star Rating (2015-2017)	-0.110(0.1479) [-0.406-0.186]	--	0.012(0.1297) [-0.244-0.268]	--
Average Health Inspection Star Rating (2015-2017)	--	-0.158(0.2397) [-0.628-0.312]	--	-0.543(0.1851) [-0.908- -0.179]**
Average Staffing Star Rating (2015-2017)	--	0.510(0.7135) [-0.894-1.915]	--	-0.388(0.5279) [-1.423-0.648]
Average Quality of Resident Care Star Rating (2015-2017)	--	-0.009(0.5082) [-1.008-0.990]	--	1.394(4.361) [0.536- 2.252]**
Zero hospital admissions in previous 12 months, zero emergency room visits in previous 12 months, and care trajectory hospital to SNF omitted from regression as controls.				
*p<0.05, **p<0.01, ***p<0.001				

Research Questions #2 and #3

Bivariate analyses

The bivariate relationships between rehospitalization within 30 days post-hospital discharge to a SNF and the independent variables of interest (plan type) and covariates are presented next, using cross-tabulations/Pearson Chi-Square tests and t-tests. Table 5.3 shows the bivariate analysis comparing insurance type and rehospitalization within 30 days post-hospital discharge to a SNF (research questions 2 and 3). There was no significant difference in the rates of rehospitalizations within 30 days post-hospital discharge to a SNF between FFS and MA patients ($p=0.174$). When examining the patient-level data, the number of hospitalizations in the previous 12 months significantly predicted risk for rehospitalizations ($p=0.009$). Among patients who did not experience a rehospitalization within 30-days of their SNF admission, 35% of them had two or more previous hospitalizations in the 12 months prior to their qualifying hospital stay for their SNF admission, 33% had zero hospitalizations, and 27% had one hospitalization. For patients who were rehospitalized within 30 days of their SNF admission, 55% of them had two or more hospitalizations in the previous 12 months, 27% had zero hospitalizations, and 18% had one previous hospitalization. Individuals who were rehospitalized within 30 days of SNF admission were significantly more likely to have a shorter length of SNF stay compared to individuals who were not rehospitalized (3.81 days vs. 4.63 days, $p<0.001$).⁷

⁷ Length of SNF stay was transformed for analysis to reduce skew by using the square root of the variable.

A few SNF-level variables were also significant. SNFs with more Medicare-Medicaid certified beds (104.24 vs. 93.48, $p=0.037$) and more MA insurance plans (0.59 vs. 0.46, $p=0.003$) were less likely to have patients rehospitalized within 30 days post-hospital discharge to a SNF compared to patients who were rehospitalized within 30 days post-hospital discharge to a SNF.⁸ On the contrary, SNFs with a higher percentage of Medicare beneficiaries (32.54 vs. 42.90, $p=0.030$) were more likely to have patients rehospitalized within 30 days post-hospital discharge to a SNF. Patients who were rehospitalized within 30 days post-hospital discharge to SNF were more likely to receive care from a SNF with a higher Quality of Resident Care Star Rating compared to those not experiencing a 30-day rehospitalization (2.26 vs. 2.08, $p=0.003$).⁹

⁸ The number of contracted MA plans was transformed for analysis because of significant skew using logarithmic transformation.

⁹ The Quality of Resident Care Star Rating variables were skewed and thus were transformed using logarithmic transformation for analysis.

Table 5.3: Bivariate Analyses Crosstabs/Pearson Chi-square Tests (Bivariate Analyses) & T-tests/Spearman – Comparison of Independent Variables by Hospitalization Within 30 Days of SNF Admission (Research Question 2 and 3)

Variable	Not Rehospitalized within 30 Days of SNF Admission (n=254, 76%) N (%)	Rehospitalized within 30 Days of SNF Admission (n=79, 24%) N (%)	Full Sample (n=333, 100%) N (%)	Not Rehospitalized v Rehospitalized <i>t(df) or Chi-Square</i>	P-value
Insurance Type					
FFS	152 (59.8%)	54 (68.4%)	206 (61.9%)	1,850 (1)	.174
MA	102 (40.2%)	25 (31.6%)	127 (38.1%)		
Age, Mean (SD), Min-Max	78.77 (±9.82)	77.47 (±10.77)	78.46 (±10.05)	47-99	.318
Sex					
Female	143 (56.3%)	42 (53.2%)	185 (55.6%)	0.240 (1)	.624
Male	111 (43.7%)	37 (46.8%)	148 (44.4%)		
Race (used for descriptives)					
White	218 (85.8%)	69 (87.3%)	287 (86.2%)	2,050 (3)	.562
Black/African American	17 (6.7%)	4 (5.1%)	21 (6.3%)		
Hispanic	17 (6.7%)	4 (5.1%)	21 (6.3%)		
Asian/Other	2 (0.8%)	2 (2.5%)	4 (1.2%)		
Race/Ethnicity (used for bivariate analysis and regressions)					
White	217 (85.4%)	70 (88.6%)	287 (86.2%)	.510 (1)	.475
Non-White	37 (14.6%)	9 (11.4%)	46 (13.8%)		
Education, Mean (SD) Min-Max	14.28 (±2.83)	14.34 (±3.00)	14.29 (±2.86)	3-23	.868
Type of Heart Failure					
HFpEF	172 (70.8%)	58 (73.4%)	230 (71.4%)	.203 (1)	.652
HFrEF	71 (29.2%)	21 (26.6%)	92 (28.6%)		
Charlson Comorbidity Index Score (CCI), Mean (SD), Min-Max	3.08 (±1.57)	3.15 (±1.56)	3.10 (±1.57)	1-10	.712

Variable	Not Rehospitalized within 30 Days of SNF Admission (n=254, 76%)	Rehospitalized within 30 Days of SNF Admission (n=79, 24%)	Full Sample (n=333, 100%)	Not Rehospitalized v Rehospitalized <i>t(df)</i> or <i>Chi-Square</i>	P-value
Number of Hospitalizations in Previous 12 Months					
0	82 (34.5%)	21 (27.3%)	103 (32.7%)	9.412 (2)**	.009
1	72 (30.3%)	14 (18.2%)	86 (27.3%)		
2+	84 (35.3%)	42 (54.5%)	126 (40.0%)		
Number of Emergency Room Visits in Previous 12 Months					
0	129 (54.7%)	39 (50.6%)	168 (53.7%)	4.703 (2)	.095
1	60 (25.4%)	14 (18.2%)	74 (23.6%)		
2+	47 (19.9%)	24 (31.2%)	71 (22.7%)		
Length of SNF Stay, Mean (SD) Min-Max	22.96 (±12.71)	15.29 (±6.52)	21.14 (±11.99) 2-73	7.083 (259.546)***	.000
Length of SNF Stay Transformed, Mean (SD) Min-Max	4.63 (±1.23)	3.81 (±0.90)	4.44 (±1.21) 1.41-8.54	6.488 (177.326)***	.000
SNF Level Variables					
Number of Medicare-Medicaid Certified Beds, Mean (SD) Min-Max	104.24 (±40.30)	93.48 (±38.42)	101.68 (±40.07) 35-240	2.094 (331)*	.037
Patient Case Mix Acuity, Mean (SD) Min-Max	11.64 (±1.04)	11.44 (±1.04)	11.59 (±1.04) 10-14	1.383 (300)	.168
Percent Medicare, Mean (SD) Min-Max	32.54 (±30.22)	42.90 (±36.07)	34.97 (±31.94) 2-98	-2.195 (102.033)**	.030
Number of MA plans, Mean (SD) Min-Max	4.55 (±6.65)	2.82 (±3.77)	4.14 (±6.127) 0-31	2.202 (331)*	.028
Number of MA plans Transformed, Mean (SD) Min-Max	0.59 (±0.34)	0.46 (±0.32)	0.56 (±0.34) 0.00-1.51	2.981 (331)**	.003
Average Overall Star Rating, Mean (SD) Min-Max	4.05 (±1.10)	4.28 (±1.11)	4.11 (±1.10) 1-5	-1.547 (324)	.123
Average Health Inspection Star Rating, Mean (SD) Min-Max	3.17 (±1.10)	3.33 (±1.12)	3.21 (±1.11) 1-5	-1.123 (324)	.262
Average Staffing Star Rating, Mean (SD) Min-Max	4.34 (±0.54)	4.45 (±0.53)	4.36 (±0.54) 1-5	-1.644 (324)	.101

Variable	Not Rehospitalized within 30 Days of SNF Admission (n=254, 76%)	Rehospitalized within 30 Days of SNF Admission (n=79, 24%)	Full Sample (n=333, 100%)	Not Rehospitalized v Rehospitalized <i>t(df) or Chi-Square</i>	P-value
Average Staffing Star Rating Transformed, Mean (SD) Min-Max	1.93 (±0.31)	2.00 (±0.30)	1.95 (±0.31) 1.00-2.39	-1.800 (133.806)	.074
Average Quality of Resident Care Star Rating, Mean (SD) Min-Max	4.03 (±1.16)	4.40 (±0.97)	4.12 (±1.13) 1-5	-2.827 (152.379)**	.005
Average Quality of Resident Care Star Rating Transformed, Mean (SD) Min-Max	2.08 (±0.53)	2.26 (±0.45)	2.12 (±0.51) 1.00-2.61	-3.002 (148.550)**	.003
*p<.05, **p<.01, ***p<.001					

Generalized estimating equations

GEE analysis was used to determine whether there was a difference in the risk for rehospitalization 30 days post-hospital discharge to a SNF for patients with heart failure with MA compared to those with FFS coverage clustered within the 29 various SNFs. In this model, insurance type was not a significant predictor of risk for rehospitalization within 30 days post-hospital discharge to a SNF ($p=0.251$ in the overall star rating model; $p=0.141$ in the health inspection, staffing and quality of resident care model) (see Table 5.2). Unlike research question 1, however, there were two patient-level variables that were significant predictors of risk for rehospitalization. The likelihood of a rehospitalization within 30 days post-hospital discharge to a SNF decreased with each added day in length of SNF stay ($B= -0.809$, $p<0.001$ in the overall star rating model; $B= -0.846$, $p<0.001$ in the three star rating model). In addition, patients who experienced two or more hospitalizations in the previous 12 months prior to their SNF admission (excluding the hospitalization directly prior to their SNF admission) were more likely to experience a rehospitalization within 30 days post-hospital discharge to a SNF compared to patients with no previous rehospitalizations ($B=0.740$, $p=0.044$ in the three star rating model) (this variable was nearly significant in the overall star rating model ($p=0.051$)).

There were several SNF-level variables that were significantly associated with rehospitalization within 30 days of post-hospital discharge to a SNF in both the overall star rating vs. the three star rating models. In the overall star rating model, the only SNF-level variable that was significant was the number of MA contracts. For each plan increase in the

number of MA plans that a SNF contracts with, the likelihood of being rehospitalized within 30 days post-hospital discharge to a SNF decreased ($B = -1.047$, $p=0.017$). The number of MA plans that a SNF contracts with was also a significant negative predictor of risk for rehospitalization in the three star rating model ($B = -0.770$, $p=0.050$). In the model that included the three star ratings, two additional SNF-level variables significantly predicted rehospitalization within 30 days post-hospital discharge to a SNF: For every unit increase in the average health inspection star rating, patients were less likely to be rehospitalized within 30 days post-hospital discharge to a SNF ($B = -0.543$, $p=0.004$), but for every unit increase in the average quality of resident care star rating, patients were more likely to be rehospitalized within 30 days post-hospital discharge to a SNF ($B = 1.394$, $p=0.002$).

Propensity score analyses

Similar to the results for the GEE models, the PSM analyses with overall star rating indicated that insurance type (FFS vs. MA) did not significantly predict rehospitalization within 30 days post-hospital discharge to a SNF ($B = -0.065$, $p=0.520$) (see Table 5.4). This also held true for the PSM model using the three star ratings ($B = -0.077$, $p=0.248$).

The IPWRA regression models also indicated no statistically significant association between insurance type and risk for rehospitalization within 30 days post-hospital discharge to a SNF in both the overall star rating model ($B = -0.488$, $p=0.302$) and the three star rating model ($B = -0.066$, $p=0.154$). Of note, while not statistically significant, all GEE, PSM, and IPWRA models pointed to MA members being less likely to be rehospitalized 30 days post-hospital discharge to a SNF compared to FFS beneficiaries.

**Table 5.4. Results of Propensity Score Matching Examining the Risk for
Rehospitalization 30 Days Post-hospital Discharge to a SNF by Insurance Type (FFS vs.
MA), n=333**

	Coefficient	Standard Error^{a,b}	T Score	P- value	95% Confidence Interval
Propensity Score Matching (PSM) Models^c					
Overall Star Rating	-0.065	0.097	-0.67	0.520	-0.286-0.157
Health Inspection, Staffing, and Quality Star Rating	-0.077	0.066	-1.16	0.248	-0.208-0.054
Inverse-Probability-Weighted Regression Adjustment (IPWRA) Models^c					
Overall Star Rating	-0.488	0.047	-1.04	0.302	-0.143-0.045
Health Inspection, Staffing, and Quality Star Rating	-0.066	0.046	-1.45	0.154	-0.158-0.026
a) Abadie and Imbens standard errors (PSM); b) robust standard errors (IPWRA) c) Covariates – Insurance type, age, education, gender, race, CCI score, type of heart failure, number of hospital admissions in previous 12 months (zero (reference) one, two), number of emergency room visits in previous 12 months (zero (reference), one, two), length of SNF stay (transformed), number of Medicare-Medicaid certified beds, percent Medicare, patient acuity index, number of MA plans.					

Conclusion

This chapter reported the results of the statistical analyses determining if insurance type affects the risk for rehospitalization 30 days post hospital discharge to a SNF. This research had three primary aims: the first was to determine if the personal characteristics of SNF patients with heart failure with MA coverage differ from those of SNF patients with heart failure enrolled in FFS Medicare. The results revealed that in this sample, in both the bivariate and GEE analyses, personal characteristics did not differ significantly between patients enrolled in the two types of insurance coverage (FFS vs. MA). However, the type of SNF that patients received care from did differ by insurance type: FFS beneficiaries were

more likely to receive care from SNFs with more Medicare-Medicaid -certified beds and a higher proportion of Medicare beneficiaries compared to MA members.

The second and third aims were to determine if there were differences in the risk for rehospitalization by insurance type. Both the bivariate and multivariate results (GEE and propensity score analyses) found no significant difference in the risk for rehospitalization between patients with FFS and MA coverage. While not statistically significant, the signs on the coefficients indicated that MA members were less likely to be rehospitalized compared to FFS beneficiaries. Results also indicated that patients with shorter lengths of SNF stays and those who had previously experienced two or more hospitalizations within the 12 months prior to their SNF admission (excluding their qualifying hospitalization) were more likely to experience a rehospitalization compared to patients with longer SNF stays and patients who had not had a hospital admission in the previous 12 months.

Several SNF-level variables were also found to significantly predict the likelihood of rehospitalization within 30 days post-hospital discharge to a SNF. Patients who received care in SNFs with more contracted MA plans and with higher health inspection star ratings were less at risk for a rehospitalization compared to patients who received care in SNFs with fewer MA plans and with poorer health inspection star ratings. Lastly, patients were more likely to be rehospitalized within 30 days post-hospital discharge to a SNF if they received care from a SNF with a higher quality of resident care star rating.

The next chapter reports results from the qualitative analysis. Twenty-three interviews with key staff members from 11 Denver metropolitan SNFs were conducted to

provide insight into the influence of insurance type on the risk of rehospitalization for patients with heart failure in SNFs.

CHAPTER 6

QUALITATIVE RESULTS

This chapter highlights the qualitative results related to the influence of insurance type on the risk of rehospitalization for patients with heart failure in skilled nursing facilities (SNFs). All data for the qualitative results were derived from 23 interviews with key staff members from 11 Denver metropolitan SNFs. All interviews were conducted from May 11, 2018 through June 22, 2018.

The first section of this chapter describes the interviewees. The remainder of the chapter is organized into themes and subthemes (see Appendix E). The primary themes developed from the interviews include perceptions of the SNF marketplace in the Denver-metropolitan area (Theme 1), SNFs' relationships with MA plans (Theme 2), preferences for fee-for-service versus MA members (Theme 3), perceptions of the penalties for 30-day rehospitalizations under the SNF Value-Based Purchasing (SNF-VBP) program under the Protecting Access to Medicare Act (PAMA) of 2014 (Theme 4), and heart failure care (Theme 5). Comparisons between roles of SNF workers and types of SNFs are identified within subthemes where appropriate.

Interviewees

Interviewees were asked to briefly describe their role within their SNF and how long they had been in their current position (see Table 6.1). Interviewees included seven directors of nursing, six administrators, three social workers, two directors of rehabilitation, two directors of admissions, one community liaison, one business operations manager, and one corporate-level executive. The average length of time interviewees had held their current position was 2.95 years ($SD=2.52$). The longest job tenure among respondents was 10 years. By contrast, six individuals had only been in their position for less than a year, with the shortest length of time being one month. A few individuals mentioned that while they had only been in their current position for a short time, they had been employed by the same corporation for a number of years. The majority of interviews were conducted with individuals from facilities that provide post-acute care, skilled rehabilitation and long-term care (LTC) ($n=8$) (referred to from here on as LTC facilities). The remaining interviews came from SNFs that provide post-acute care and skilled rehabilitation only ($n=3$) (herein referred to as stand-alone SNFs).

Table 6.1: Interview Participants

SNF_ID	Role/Title in SNF	Number of Years in Current Position	Type of Facility: Stand-alone SNF vs. Long-term Care (LTC)
1_A	Administrator	1 ½ years	LTC
6_A	Administrator	3 years	LTC
6_B	Social Worker	10 years	LTC
6_C	Corporate-level Executive	3 years	LTC
6_D	Director of Rehabilitation	6 ½ years	LTC
6_E	Director of Admissions	5 years	LTC
9_A	Administrator	4 years	LTC
9_B	Director of Nursing	1 ½ years	LTC
11_A	Director of Nursing	3 months	LTC
11_B	Administrator	2 months	LTC
12_A	Director of Nursing	5 ½ years	Stand-alone
14_A	Director of Nursing	2 months	LTC
14_B	Social Worker	3 months	LTC
19_A	Community Liaison	6 years	LTC
19_B	Business Office Manager	2 ½ years	LTC
23_A	Director of Nursing	7 months	LTC
24_A	Administrator	3 years	LTC
24_B	Director of Nursing	5 years	LTC
24_C	Director of Admissions	2 years	LTC
28_A	Director of Nursing	1 ½ years	Stand-alone
28_B	Social Worker	4 years	Stand-alone
29_A	Director of Rehabilitation	2 years	Stand-alone
29_B	Administrator	1 month	Stand-alone

Theme 1: The SNF Marketplace in Denver, Colorado

The SNF marketplace in Denver was described by nearly all interviewees (regardless of professional role and facility type) as competitive (1.a). This competition stems both from oversaturation of the market (1.a.i) and decreased demand for rehabilitation in a SNF setting

due to increased care provision at home (1.a.ii). Along with the competitive nature of the marketplace, the Denver metropolitan area has seen a number of changes throughout the years (1.b). Several interviewees described how in recent years they have seen the SNF population grow sicker (1.b.i) as well as exhibit increased MA plan enrollment (1.b.ii). In addition, interviewees described how they have seen lengths of stay (both in SNFs and in hospitals) decrease over time (1.b.iii). Staffing shortages have become increasingly prevalent as well (1.b.iv). When describing the SNF marketplace, interviewees outlined the various methods used by SNFs to attract business (1.c), including using liaisons for marketing (1.c.i), becoming preferred providers (1.c.ii), and marketing with specific specializations (1.c.iii). Ultimately, interviewees described how the decision of which SNF to receive rehabilitation from lies with the patient (1.c.iv).

The Denver SNF marketplace is highly competitive (1.a).

When asked to describe the SNF marketplace in Denver, nearly all interviewees first mentioned that it is competitive. A community liaison described how the competition for each new patient begins even at the time of referral from the hospital to SNFs. “I mean they’ll [hospitals] splash referrals out to five or six SNFs and there’s literally sometimes a line of liaisons to get into a room” (19_A Community Liaison).

Oversaturation of the SNF marketplace in Denver (1.a.i).

Competition in the SNF marketplace was described by interviewees as stemming, in part, from an oversaturated market (1.a.i). Most SNF interviewees in the Denver metropolitan area see the market as oversaturated leading to a lot of competition for patients. The oversaturation is good for patients and families because they have many choices. According

to one corporate executive: “There are quite a few communities and many of them five-star rated by CMS so there is good choice” (6_C Corporate-level Executive). However, with so many SNFs in the market, it makes for steep competition between the SNFs to attract business to their facility.

This oversaturation derives, in part, from a lack of regulation of supply. Colorado is not a Certificate of Need (CON) law state (1.a.i.1); consequently, new SNFs have been built throughout the state in the absence of demonstrable need or demand (1.a.i.2). Moreover, newer SNFs tend to be “stand-alone” facilities that only provide post-acute care and skilled rehabilitation (1.a.i.3). These newer SNFs are in direct competition, not only with other stand-alone facilities, but with older LTC facilities that provide post-acute care, skilled rehabilitation and LTC (1.a.i.4).

Colorado does not have a Certificate of Need law (1.a.i.1). Many administrators and directors of admissions described the main reason for the oversaturation of the SNF marketplace as the fact that Colorado is not a Certificate of Need (CON) law state. CON laws were put in place by many states to ensure that there is a demonstrated need and demand for new SNFs, based on a concern that oversaturated markets might increase health care costs (Simpson, 1985). Colorado is one of 12 states in the United States that does not have a CON law (National Conference of State Legislatures, 2019). One administrator from a LTC facility described how the absence of a CON law has created oversaturation in the Colorado marketplace:

Colorado is not a Certificate of Need state so there has been some recent influx in new buildings, new facilities to the market, which has created a number of beds in the

market that everyone is fighting for census. So that makes it a little bit more challenging (6_A Administrator).

New SNFs built ahead of demand (1.a.i.2). Further echoing the consequences of Colorado not having a CON law, interviewees described how new SNFs are being built in hopes of meeting the upcoming demands of the baby boomer generation. However, a few interviewees from LTC facilities described how the demand for the new SNFs is not here yet. As one administrator from a LTC SNF stated:

I think it's oversaturated in that there are a lot of companies on the baby boomer aging wagon. And I think they're acquiring and also building a lot of new facilities.

But the population just isn't there yet. We're pretty healthy [laughs] baby boomers.

And I think they're a few years ahead of their time with it. But it does end up making it really competitive (1_A Administrator).

With so many skilled-certified beds available in the Denver metropolitan area, a few interviewees expressed that they find that their SNF (both LTC and stand-alone SNFs) or others are having trouble maintaining their census.

When this building opened, the expectation was, "Hey, you have 96 beds. Seventy of them are gonna be Medicare," and it's like, "No way. Not with COMPETITOR FACILITY NAME just opening." They opened earlier than we did, and they had some struggles in the beginning (12_A Director of Nursing).

New SNFs are stand-alone facilities that only provide post-acute care and rehabilitation (1.a.i.3). Many interviewees from LTC facilities mentioned that the new SNFs being built are primarily "stand-alone" facilities, or as one director of therapy termed, "super

SNFs,” that only provide post-acute care and skilled rehabilitation. The newer stand-alone SNFs were described by one administrator of a stand-alone SNF as:

very high end...that have a hospital-like feel that offer patients amenities like private rooms and bathrooms...some of the comforts that you expect to see in the hospitality industry that are now translating to SNFs (29_B Administrator).

Stand-alone SNFs and LTC facilities compete with one another for referrals

(1.a.i.4). The influx of stand-alone SNFs has not only put them in direct competition with one another, but also with typically older LTC facilities that offer post-acute care, skilled rehabilitation and LTC. Interviewees from SNFs that provide post-acute care, skilled rehabilitation and LTC mentioned that LTC facilities are often at a disadvantage in attracting patients because they tend to be older and unable to offer private rooms. One administrator from a LTC facility described the competition with stand-alone SNFs:

We have a lot of new companies that have built from the ground up beautiful, beautiful communities. So for someone like us, we have a building that is still very lovely, but it's 10 years old, 11 years old. When a prospective client goes in or a family member, they see the marble floors and the private rooms. And so they're immediately drawn to them [stand-alone SNFs] (1_A Administrator).

In addition, interviewees described how many rehabilitation patients do not want to go to a facility that also serves LTC patients because they do not want to be associated with that type of patient. Said one administrator: “Rehab patients tend to be younger, healthier, more alert and oriented, and not want to be associated with patients who need long-term care” (29_B Administrator). However, a few interviewees from LTC facilities pointed out

that while patients might prefer the newer stand-alone SNFs, those SNFs may not necessarily offer the best care. An administrator from a LTC facility mentioned:

I think a lot of people get disappointed and disillusioned when they put their loved ones in those new places and they find that they're just not getting the care they deserve.... they're dissatisfied with the care, they're dissatisfied with the attention and response they get. And [then] they come over here (1_A Administrator).

Decreased need for post-acute care and rehabilitation in a SNF setting (1.a.ii).

The SNF marketplace was also described as competitive because there are not enough patients in need of post-acute care and rehabilitation in a SNF setting (1.a.ii). Many interviewees mentioned that they are now seeing increasing numbers of patients sent home from the hospital with post-acute care and skilled rehabilitation provided by a home health agency rather than being sent for SNF care (1.a.ii.1). With fewer patients in need of post-acute care and rehabilitation in a SNF, the competition among facilities has increased. The patients who remain in need of post-acute care and rehabilitation in a SNF setting are highly sought after even though they are typically sicker with multiple comorbidities and a high acuity (1.a.ii.2).

Patients receiving post-acute care and rehabilitation at home with home health compared to in a SNF setting (1.a.ii.1). Most interviewees reported that many patients are sent home with home health care (a lower cost setting) rather than receiving post-acute care and rehabilitation care in a SNF. Medicare and managed care plans are looking for ways to save money by providing post-acute care and rehabilitation in lower-cost settings (i.e., patients' homes). Said a director of nursing: "A lot of insurances and facilities are kind of

pushing people to go home if they can as much as possible, or home with home health” (11_A Director of Nursing). Echoing the same sentiment, an administrator described how “Medicare definitely is trying to manage their money well. So, if you’re safe at home they want you to go home” (11_B Administrator).

Patients in need of post-acute care and rehabilitation in SNFs are more acute

(1.a.ii.2). One of the primary mentions of most interviewees was that they have seen an increase in the acuity of the patients that they get referrals for. With many patients discharged straight from the hospital to home, the sicker patients are the ones requiring post-acute care and skilled rehabilitation in a SNF. A few interviewees felt that many of the easier orthopedic patients they were once seeing are now sent home rather than to a SNF, possibly to save the insurance companies and Medicare money but also to prevent infection. The population that remains and requires rehabilitation in a SNF is more acute and has more comorbidities, making them more difficult to care for. One administrator described the population:

The patients that we are seeing typically have more multiple comorbidities...I guess there’s not a lot of middle gap...there’s really young with some poor health problems and then an older population that has a lotta stuff (6_A Administrator).

Patients with multiple comorbidities are more challenging to care for. According to a Director of Admissions: “I think our demographic is just getting harder. Everybody’s got an obesity diagnosis, or a diabetes diagnosis, underlying COPD or CHF that exacerbates their ability to heal fully.” (24_C Director of Admissions).

Changes over time in the Denver SNF marketplace (1.b)

Interviewees identified several changes in the SNF marketplace over time. Most mentioned that the population of skilled patients is sicker overall (1.b.i), that a growing number of SNF patients are MA members (1.b.ii), that there has been a reduction in the length of stay both in both SNFs and hospitals (1.b.iii), and that staffing shortages exist in the SNF workforce (1.b.iv).

Skilled rehabilitation population is sicker than in the past (1.b.i).

Patients receiving care in SNFs are increasingly acute because stable patients are being sent home from the hospital with home health (see 1.a.ii.2). Consistent with this observation, a few interviewees mentioned that SNF patients are thus sicker and more medically complex overall than in the past. One Director of Admissions described this change in the SNF population: “The population of people that we’re taking is chronically worse. They’re more sick. They have more comorbidities, more dual diagnoses.” (24_C Director of Admissions)

Increase in the enrollment of Medicare beneficiaries into MA Plans (1.b.ii).

The SNF population in general was also described by many SNF staff members as changing in terms of MA enrollment. A few interviewees mentioned that they are seeing the MA population grow. One corporate level executive reported that this change in enrollment is occurring nationwide, not just in Denver.

The first and the most significant [trend] is the shift from Medicare A payer [FFS] to managed-care payer [MA]...in my marketplace, which is very broad, I think I’m

running almost like 50/50 now for managed care [MA] and Medicare [FFS] (6_C Corporate-level Executive).

Potential reasons for this shift include effective marketing strategies on the part of MA plans as well as the additional benefits (e.g. hearing aids) provided under such plans. Said one administrator:

I think marketing had a lot to do with it [growth in the MA market] on behalf of managed care companies. Their advertisements and correspondence via email and regular mail about how more comprehensive your coverage will be – you'll get these benefits and these benefits and all this stuff (1_A Administrator).

Patients are experiencing shorter lengths of stay in both hospitals and SNFs (1.b.iii).

Along with the growth in MA plan enrollment, a few interviewees mentioned that the length of SNF stays are getting shorter due to the pressures from MA plans to discharge patients earlier. They described how MA plans often make decisions about when a patient should be discharged and that SNFs have far less autonomy in determining length of stay than they had previously. According to one executive:

The other trend that is very significant is a much-reduced length of stay. Our average length-of-stay numbers for a skilled patient exceeded 30 days just a couple of years ago, probably 3 years ago, and we're probably closer to 20, 22 days now so length of stays are decreasing significantly. Part of that I think is that the managed-care companies of course manage the length of stay and make the decision. We're also

probably influenced consciously by the managed-care discharges because we see that they go home earlier... (6_C Corporate-level Executive).

In addition to shorter lengths of SNF stays, one administrator mentioned that they feel patients are also being discharged from hospitals quicker: “Everybody is quicker, sicker and on a ticker...they’re gonna come from the hospital quicker, and they’re gonna be sicker” (24_A Administrator).

Increase in staffing shortages in the SNF workforce (1.b.iv).

Lastly, interviewees mostly from LTC facilities mentioned that they have seen an increase in staffing shortages and turnover rates in their SNFs. One administrator described that “staffing, for the most part, particularly in for-profits, is at bare bones. I’ve had to fight tooth and nail to make sure I have my staffing levels where I want them” (1_A Administrator). Two directors of nursing of LTC facilities indicated that they would like to fill the beds in their SNFs because of the increased acuity of patients requiring more staffing, but they are unable to do so with the staffing shortages. They described that the increased acuity of the patients demands more staffing, but, “there’s just not enough CNAs and nurses in the Denver Metro area to cover all of the positions that we have” (9_B Director of Nursing).

The oversaturation of the SNF marketplace makes it difficult to hire and retain employees. Another director of nursing from a LTC facility mentioned that often staff will leave a LTC SNF to go to a newer, stand-alone SNF or to follow an administrator or director of nursing who had sought employment elsewhere. “People think that perhaps they wanna take a chance. It might be a newer building. They may follow a director of nursing. They

may follow an ED” (24_B Director of Nursing). With staff constantly transitioning from facility to facility, it can make it difficult to retain an adequate staff. Staffing shortages forced one LTC SNF to close an entire skilled rehabilitation wing in their facility, adversely affecting overall revenue.

Methods SNFs use to attract business. (1.c)

With the competitive marketplace, SNFs must use various methods to attract skilled rehabilitation patients to their facility. One of the top resources SNFs use is their liaisons, who work closely with hospitals to market their facility (1.c.i). Another key aspect of attracting business to their facility is to become a preferred provider of hospitals, including participating in bundled payment plans and Accountable Care Organizations (ACOs) (1.c.ii). Primarily LTC facilities have also begun to create niches for themselves where they market to hospitals as taking sicker, more acute patients that other SNFs may not take (1.c.iii). Lastly, many interviewees stated that they rely on contracting with managed care insurance companies to attract business and maintain their census (this will be discussed more in Theme 3 related to the relationship between SNFs and managed care MA plans).

Most SNFs use clinical liaisons for attracting patients to their facility (1.c.i).

Nearly all interviewees, regardless of their title and SNF type, mentioned that clinical liaisons play a key role in attracting patients to their SNF. Liaisons typically have a clinical background such as nursing (e.g. RNs, LPNs) as well as marketing skills. However, one corporate-level executive described that some of their liaisons do not have clinical background, but they prefer a clinical background so that they “have somebody that can make the decision at the bedside...whether we can admit the patient or also in terms of

deciding what they need” (6_C Corporate-level Executive). Liaisons serve as the face of the SNF to the patient while they are in the hospital. SNF staff members described how their facility or their corporation typically have multiple liaisons who serve as ambassadors to all of the hospitals in the Denver metropolitan area. They market to each of the hospitals and work closely with hospital staff to ensure that they get those much-needed referrals (1.c.i.1). Patients are given a number of SNFs to choose from and then a blast of information about the patient is sent out electronically to those SNFs. Said one corporate-level executive:

The [hospital] discharge planners work through certain electronic formats where it’s kind of a blast set of information that goes out to a number of communities. We register for that site and we pay the money to belong to that site. I know the [hospital] discharge planners generally give – you know they are required to give choice and they would usually have a preferred list of providers that they work with based on typically the five-star rating from CMS and maybe also geography. The next thing is that communication [that the] patient is slated for discharge in two to three days. So our goal is to have that communication and invite the family for a tour or provide the information they need to make a decision (6_C Corporate-level Executive).

Liaisons also work closely with case managers in the hospitals to learn of potential new patients and to determine their goodness of fit for the SNF (1.c.i.2).

Liaisons act as marketers for the SNF (1.c.i.1). Liaisons serve primarily as marketers for the SNF in local hospitals. They work closely with hospital staff to obtain referrals and then market the SNF to eligible patients and family members. One director of nursing described the importance of their role:

We do have – CORPORATION NAME itself has liaisons in all the hospitals. They don't just work for this building. They work for multiple buildings. That's their Monday through Friday job is being in the hospitals and assisting the case managers and finding placement for folks...Marketing events with case managers at the hospital, which is really hard to do, 'cause they're very busy. So, the biggest piece is having the most helpful interactive liaisons in the hospital. (23_A Director of Nursing).

One director of nursing also described how their liaison also goes out into the community to market to other places besides hospitals:

So we have...a community liaison to build relationships out in the community as well as our Regional Director of Marketing. They market to hospitals, build relationships with other assisted living facilities, other people in the community. We build relationships with home health companies, just wherever you can get that business. Relationships is what's going to determine where these people really go so I think that plays a big part. (14_A Director of Nursing).

Liaisons determine goodness of fit of patients for their SNF (1.c.i.2). Liaisons work closely with hospital discharge staff to learn of potential patients for the SNF. They serve an important role in determining the goodness of fit of each patient for their facility in terms of whether the facility can meet each patient's specific medical needs. Said one director of admissions:

So they'll go evaluate the patient and make sure that they're even appropriate for our facility. The hospital says, "This person's ready to go." Our liaison goes

and evaluates them. They send us the information (24_C Director of Admissions).

SNFs strive to become preferred providers with hospitals and bundled payment plans/accountable care organizations for referrals (1.c.ii)

SNFs strive to form partnerships and become preferred providers with local hospitals to maintain their census. Working closely and forming a relationship with a hospital can ensure that more referrals are made to the SNF (1.c.ii.1). Ultimately, the decision of where to receive skilled care is up to the patient. However, a few interviewees mentioned that hospitals have preferred SNFs that they can recommend when patients are determining where to go. To become a preferred provider, SNFs must demonstrate that they provide quality care with few rehospitalizations. Another strategy SNFs used to attract business is to become part of a bundled payment plan or ACO (1.c.ii.2). A few interviewees mentioned that their SNFs are participating with such plans, but others described how the bundled payment plans and ACOs only provide minimal referrals.

SNFs strive to become preferred providers with hospitals for referrals (1.c.ii.1).

Hospitals cannot tell a patient where to go for rehabilitation, but they can provide the patient with a handful of options; SNFs compete to be on that list as a preferred provider. Said one community liaison: “[Hospital] case managers can’t necessarily steer them [patients], but they can say “I really suggest that you tour these facilities...these are the handful of places I might put my parent”” (19_A Community Liaison). To become a preferred provider, hospitals want to see that a SNF is accepting their referrals and that their patients are receiving quality care. Specifically, hospitals want to know that their referrals are not being readmitted, potentially incurring a penalty for the hospital. Said one administrator:

They [hospitals] wanna know that you're a partner, that we're in this together...like hospital readmissions is something that everyone looks at. And I do believe that if there was a real problem with readmissions, they would no longer use that partner because again, it's clinical outcome based... A lot of hospital systems in the area request that we report on certain metrics for a certain type of patient. Metrics as far as length of stay, any adverse outcome, falls, customer satisfaction surveys. And so everything is just really about what you do. (24_A Administrator).

In addition, many hospitals look at SNFs' ratings on CMS' five-star system when identifying preferred providers. Having a high star rating is a necessity when trying to secure referrals from hospitals because they want to see evidence that their patients have good outcomes. According to a corporate level executive:

I know the discharge planners are required to give choice and they usually have a preferred list of providers that they work with based on typically the five-star rating from CMS (6_C Corporate-level Executive).

SNFs strive to become part of bundled payment plans and ACOs for referrals

(I.c.ii.2). When asked if their SNF participates with a bundled payment plan or ACO, a few interviewees from both LTC facilities and stand-alone SNFs mentioned that their SNFs are in such partnerships with the goal of increasing the number of referrals to their SNF. Complete Joint Replacement (CJR) bundled payment plans were the primary plan type for which participating SNFs in the present study served as preferred providers. Mostly administrators described how their SNFs are working to become preferred providers for those CJR plans. An administrator and a corporate-level executive described that those CJR patients are ideal

because they have the best potential for a quick rehabilitation and better outcomes compared to other more complicated patients:

So, they're going to come in, and they don't have the same kind of comorbidities. A lot of their surgeries have been an optional surgery, so it's a quick turnaround for them to get where they need to be. (11_B Administrator).

I have a couple locations in the Midwest with some orthopedic hospitals...and we know coming in how many days they expect and of course orthopedic is the easiest example because it is much more scripted. We know how many days they expect the patient to stay (6_C Corporate-level Executive).

Staff members from SNFs that were already preferred providers, however, reported seeing very few referrals. For example, one director of admissions of a LTC facility mentioned that they could not even remember one referral in the last year. A director of nursing of a LTC facility described how they believe bundled payment plans and ACOs are perhaps a thing of the past: “But it kind of became this big thing everybody was going to do, and it kind of fizzled out. I'm not quite sure why” (23_A Director of Nursing). With so few referrals coming from bundled payment plans and ACOs, SNFs must look elsewhere for referrals.

LTC facilities create niches and specializations to remain competitive against stand-alone SNFs in the Denver SNF marketplace (1.c.iii)

Creating niches and specializations is another way many interviewees from LTC facilities (but not stand-alone SNFs) reported that their SNFs market themselves to remain competitive in the oversaturated market. According to one director of rehabilitation:

There are definitely a lot of SNFs in the area, so it helps to have some sort of a niche or specialty that can give you a little bit more of an edge in the Denver market (6_D Director of Rehabilitation).

By having a specialization, SNFs are able to better market themselves to hospitals so that they obtain more referrals. A few interviewees from LTC facilities mentioned that to compete with stand-alone SNFs they end up taking (specializing in) higher acuity patients that no other SNFs want to take. Said one administrator:

We take patients that typically nobody else in the state wants to take because they're a much higher risk patient...we've set ourselves up like that so that we can compete with newer buildings. So that's what gives us our negotiating edge (9_A Administrator).

Interviewees from LTC facilities described the higher acuity patients as those with heart failure, brain injuries, or patients who are bedbound or have a feeding tube or a trach. Some LTC facilities have set up programs specifically to care for those higher acuity patients. They advertise to hospitals that they have the knowledge and skills to care for the highly acute patients whereas other facilities may not want to take on the risk of caring for such patients. However, a few interviewees acknowledged that taking on higher acuity patients does put their facilities at financial risk. Patients with more medical needs require more resources and for patients enrolled in MA plans, the capitated payments may not cover all of those costs. In addition, patients with multiple comorbidities may put SNFs at a greater risk for having to send those patients back to the hospital, thus potentially incurring penalties

(as will be discussed further in Theme 4 describing financial penalties for rehospitalizations under the SNF-VBP program).

The decision of where to receive post-acute care and skilled rehabilitation in a SNF is up to the patient (1.c.iv).

Ultimately, the decision of where to go is up to the patient. Interviewees described several methods patients use to inform selection of a SNF, including using the internet (1.c.iv.1), family members (1.c.iv.2), the physical appearance of the SNF (1.c.iv.3), location (1.c.iv.4) and word of mouth/reputation (1.c.iv.5).

Patients use the internet to search for a SNF (i.c.iv.1). The Internet was mentioned by many interviewees as one of the primary sources of information patients use to make the decision about where to receive post-acute care and rehabilitation. As one director of nursing of a LTC facility described: “People are more internet-savvy. So they go to the internet for everything, they read Google reviews, they will look at their facility’s star rating” (14_A Director of Nursing). Those who mentioned the Internet as a resource for referrals described Google as one of the primary resources that individuals use in their search for a SNF. However, two individuals from a LTC facility described that Google reviews are not always accurate and can be detrimental to attracting patients to their facility. One administrator mentioned that they would prefer for individuals to use CMS’ Nursing Home Compare website, but people in their time of need just use Google star ratings for their decision-making:

A lot of patients do use Google, not that that's the best resource. I try to tell 'em all the time, "You gotta go to CMS.gov to really be able to see." But I think to the lay, you

know nothing about the post-acute space. If somebody comes in and tells you, "Hey, your mom's gotta go to a post-acute [SNF] for a couple weeks to get a little bit stronger." And you're like, "Well, I don't really know what that is." What's the first thing you're gonna do? You're gonna Google. (24_A Administrator)

While Google was described as a primary internet resource, many interviewees (both from stand-alone SNFs and LTC facilities) also mentioned that they are starting to see increasing numbers of people use CMS' Nursing Home Compare website to find out SNFs' star ratings when deciding where to go for post-acute care and rehabilitation.

Family members help patients select a SNF (i.c.iv.2). Two interviewees mentioned that family members play a large role in helping determine where a patient goes for post-acute care and rehabilitation. Family member(s) will often tour a number of facilities or use the Internet to determine where to send the patient while they are hospitalized. Said one director of admissions:

The hospital case managers encourage the families to tour and then if our liaison meets the family they also invite them to come tour and check out the building, which is a good idea for families to do and kind of just see what the environment looks like and kind of have a feel for it before bringing someone here (6_E Director of Admissions).

The physical appearance of the SNF matters in patient selection of where to receive care (I.c.iv.3). While touring a facility, interviewees from both types of facilities mentioned that the physical appearance of the SNF plays a large role in the selection process. Said a director of admissions: "Some people are just more aesthetic. They wanna walk in and see

that it looks good, and it doesn't smell bad, and they're fine with that" (24_C Director of Admissions). However, a few interviewees from LTC facilities mentioned that just because a facility looks nice, does not mean that it provides good care. This sentiment seemed to be directed towards the newer stand-alone SNFs. According to a director of nursing, "I always tell everybody a pretty building doesn't mean they get A+ care. The building has nothing to do with it, it has to do with the staff inside" (14_A Director of Nursing).

The location of the SNF relative to their home or their family matters to patients
(1.c.iv.4). Location was described by a few interviewees as one of the key determining factors for SNF selection by a patient. If a SNF is located near a patient's home they will likely choose that SNF, as one director of admissions from a LTC facility described:

Ultimately it's about location. If they live closer to another SNF, that's where they're gonna go, regardless of how cool you think you are (24_C Director of Admissions).
On the other hand, one director of nursing from a stand-alone SNF mentioned that sometimes a patient will choose a SNF that is close to their family's home rather than their own home so that family members can come visit more frequently.

Patients select a SNF based on the reputation of the SNF or word of mouth
(1.c.iv.5). All of the SNFs that participated in the interviews were part of various chains/corporations of SNFs. With this in mind, a few interviewees mentioned that the reputation of the company that their SNF belongs to helps with referrals. Two interviewees from a smaller LTC facility mentioned that their chain/corporation's reputation in the community is key to attracting business. Said the director of nursing for this facility:

Our corporation, COMPANY NAME, is very well known in the community and has a good reputation, so I think that all of that, plus the fact that we're able to provide really good care here and make sure that the people that do come in for skilled nursing get that rehab to where they can go back home. That helps a lot (11_A Director of Nursing).

Four other staff members mentioned that word of mouth is another key way that they get referrals. Positive feedback from patients who have been to their facility before or other individuals within the community can spur referrals. Said one administrator, “they’ll hear of us word of mouth from someone else that’s been here. So that’s how we get primarily most of our referrals” (1_A Administrator). Two interviewees described that some of their business comes from repeat patients. Said a director of nursing, “we do get several patients who cycle back, who’ve been with us before. They go back to the community; they go back to the hospital. They come back to us because they’ve been here” (12_A Director of Nursing).

Summary

In sum, nearly all interviewees described the SNF marketplace in the Denver metropolitan area as competitive. Many new stand-alone SNFs have been recently built and have oversaturated the market at the same time that the need for post-acute care and rehabilitation in a SNF setting has decreased with more patients going home with home health care. Interviewees described several changes in the marketplace over the years, including a more acute population, an increase in the MA population, shorter lengths of stay in hospitals and SNFs and an increase in staffing shortages. With the competitive

marketplace, SNFs pursue several methods to attract business to their facility. Most interviewees described how they rely on their liaisons for marketing. In addition, SNFs work to become preferred providers with hospitals to increase the number of patients referred to their facility. A few interviewees from LTC facilities mentioned that their SNFs specialize in serving higher acuity patients so they can set themselves apart from stand-alone facilities. Lastly, many mentioned that ultimate selection of a SNF is up to the patient, who use a number of resources and tools to determine which facility to go to.

Theme 2: SNFs' Relationships with Medicare Advantage Plans

One of the main priorities of the qualitative interviews was to discover the dynamics and relationships between SNFs and managed care MA plans. In discussing these relationships, two subthemes emerged including MA contracting (2.a) and the mechanisms used by MA plans to control how their patients are cared for by the SNFs (2.b).

Under the MA contracting subtheme, interviewees reported the reasons SNFs obtain MA plan contracts (2.a.i) as providing supplemental referrals to FFS Medicare beneficiary referrals (2.a.i.1) and as helping to maintain their census during seasonal dips (2.a.i.2). They also described the process through which SNFs enter into MA plan contracts (2.a.ii). Many interviewees from the stand-alone SNFs reported that Kaiser Permanente (a large Health Maintenance Organization (HMO)) is a highly sought after MA plan that is extremely selective in who they decide to work with (2.a.iii).

Moving beyond contracting, interviewees described the mechanisms of control that MA plans use to influence the care provided for their members while in a SNF (2.b). The primary mechanisms discussed included case management (2.b.i), pre-

authorizations/utilization review (2.b.ii), selective contracting (2.b.iii), financial incentives (2.b.iv), limits on length of SNF stay (2.b.v), and discharge planning (2.b.vi).

SNF and MA plan contracting (2.a).

Interviewees described the main purposes for obtaining MA plan contracts (2.a.i) as providing additional clients to supplement FFS Medicare beneficiaries (2.a.i.1) and providing referrals to help offset the decreased demand for skilled rehabilitation in a SNF during seasonal dips (2.a.i.2). In addition, they described how contracts are made (2.a.ii). Kaiser Permanente, in particular, was a topic that came up primarily amongst stand-alone SNFs as a coveted MA plan to contract with (2.a.iii).

Purpose for obtaining MA plan contracts (2.a.i).

Nearly all SNFs must rely on MA plans to help fill their beds. When asked why SNFs contract with MA plans, most interviewees mentioned that MA members act as a backup or supplement for their FFS beneficiaries (2.a.i.1). Other interviewees described seasonal dips where the summer months can be slower than the rest of the seasons (2.a.i.2). Having MA member referrals helps to increase their odds of being able to maintain their census during those slower months.

SNFs contract with MA plans to supplement their Medicare FFS business and to fill Their census (2.a.i.1). Skilled rehabilitation reimbursement from Medicare is the primary funding source for most SNFs. While stand-alone SNFs often rely solely on Medicare reimbursement, LTC facilities often rely heavily on Medicare, but are also reimbursed through other sources (e.g. Medicaid, private pay); due to higher reimbursement rates, however, Medicare patients are preferred. To remain competitive and to attract referrals to

their facilities, many SNFs partner with MA plans to maintain their census. While patients who carry FFS Medicare can receive skilled rehabilitation from any CMS-certified SNF, enrollees with MA plans must receive skilled rehabilitation from SNFs within their plan's provider network. SNFs see contracting with MA plans as an opportunity to increase and supplement their Medicare FFS business in light of growing numbers of Medicare beneficiaries opting to enroll in MA plans. This sentiment was shared among interviewees from both types of facilities, stand-alone SNFs and LTC. Said one administrator:

For buildings like ours, we've got 96 short-term beds. There are not 96 [FFS] Medicare patients out there that we can capture. And so you get to your threshold where you know you have to supplement your Medicare patient load with other payer sources. (29_B Administrator)

One administrator, however, explained that SNFs must weigh the costs and benefits of partnering with MA plans as they often engage in considerable oversight while reimbursing less than traditional FFS Medicare. As this administrator described:

SNFs have to be very careful in who they contract with. And it's better to have the beds filled than not filled. But then you have to weigh the cost benefit of those other payer sources, whether it's gonna be the expense of taking those patients in, what's the cost of care, and what do you get reimbursed, and figure out what makes sense. At what point are you making money and at what threshold are you actually losing money for the care of those patients? (29_B Administrator).

MA referrals supplement for seasonal dips when SNFs have few referrals (2.a.i.2).

SNFs can see seasonal dips in the number of patients requiring post-acute care and

rehabilitation in a SNF setting. MA plans help to offset the seasonal dips that interviewees described as occurring typically during the spring and summer months:

In January, February, March, I'm assuming that Medicare patients are trying to use their deductibles to have their knees and hips replaced, plus the flu season and the cold season and the icy season out here. And then May, June, July, August, you have a decrease [in patients]. I don't know if that's 'cause physicians are out on vacation or what the deal is for the summer. Or maybe people are home to help family. Then you pick back up in August, September, October, and November. (29_A Director of Rehabilitation)

How contracts form between MA plans and SNFs (2.a.ii).

Most interviewees indicated that they were unaware of how their SNF's MA plan contracts were made – stating either it was done at a corporate level, that the contracts predated their period of employment, and/or that they were unaware of the intricacies of the contract negotiations. Two administrators (one from a stand-alone SNF and one from a LTC facility), however, indicated that they had been involved in the contracting process with MA plans in previous positions at other facilities. They reported that either the SNF or the insurer can initiate the contracting process. The administrator from the stand-alone SNF indicated that SNFs will typically “do a market analysis to see how many patients are subscribers of the different insurance types...to find those companies that cover the most lives in [the] area. [SNFs would] then...prioritize those patients and those contracts first” (29_B Administrator). Once a SNF determines which insurers they would like to contract with, they typically reach out to those insurers to see if they would be interested in establishing a contract. Insurers then

would determine if they have a need for the contract themselves, involving, according to one administrator, considerations such as the following:

And it's like a number of lives covered in a geographic area. And then they have some kind of formula to compute how many SNF beds they need to have in facilities and where they want those facilities to be strategically located in the Denver metro area (29_B Administrator).

The other administrator from the LTC facility described how MA plans identify comparatively higher quality SNFs, at least according to prevailing quality measures. In particular, this administrator reported, they would seek facilities with “five stars and were talking to physicians, and people on the hospital level. ‘Where are you sending your patients? What kind of outcomes?’ And they were looking at hospitalizations as well” (11_B Administrator).

It was reported that the outcome of rate negotiations depend on how well a SNF can demonstrate that they meet certain quality metrics as required by the MA plan. However, if there is a high demand for a particular SNF, the facility has more leverage to be able to ask for a higher reimbursement level. As one administrator from a stand-alone SNF described:

You are able to negotiate [the reimbursement rate]. They [MA plans] usually have some kind of formula...There's different quality metrics that matter to different payer sources. And if you're able to deliver care that really hits well on those quality metrics – high patient satisfaction levels, that you're controlling the length of stay, that you're controlling some of the cost of care - Then you're sometimes able to negotiate a higher rate. And if there tends to be a particular demand for your building, that a lot

of their patients are requesting your building specifically, again it gives you some leverage to circle back and say, “okay, yes, we can help you out, but we need to have more carve outs or we need to have higher reimbursement levels” (29_B Administrator).

Contracts with Kaiser Permanente are highly sought after (2.a.iii).

The HMO, Kaiser Permanente, was one MA plan that came up frequently when conducting interviews with staff at SNFs that have contracts with them. Kaiser has the second largest market share in the state of Colorado (24%) for managed care enrollment, second to United Healthcare (44%) (Kaiser Family Foundation, 2018). Kaiser is a highly sought after contract because they play a large role in filling SNFs’ censuses with referrals. However, Kaiser Permanente is very selective in who they contract with and has primarily moved towards only having contracts with stand-alone SNFs. Explained one director of nursing, “Kaiser has pretty much left the long-term care SNF buildings and contracted with just the free-standing SNFs” (12_A Director of Nursing). Interviewees from stand-alone SNFs described how SNFs must have a three or higher star rating, offer private rooms, have a low rehospitalization rate and have a high staffing rate to be considered by Kaiser Permanente. In addition, a few interviewees from stand-alone SNFs reported that Kaiser Permanente expanded to their buildings because they were already in other buildings within the SNF’s parent corporation and also because they were in a desirable location where there were more Kaiser Permanente members. When asked if Kaiser Permanente chose to work with them based on their company’s reputation, one director of rehabilitation responded:

Well, I'm pretty sure, 'cause of our other buildings. So our other buildings have [had] positive work with Kaiser. And so they came to us. And because we're centrally located, 'cause our other one's at the south part of town. We got one in the north part of town, then we're here (29_A Director of Rehabilitation).

Kaiser Permanente typically requires that around 30 beds be designated for their members in the stand-alone SNFs with which it contracts. Having those Kaiser Permanente referrals and designated beds helps to ensure that contracted SNFs will typically have those beds filled, helping them to maintain their overall census. Indeed, one director of admissions from a LTC facility reported that they had to close a whole wing down in their facility because of the loss of referrals after they lost their Kaiser Permanente contract. However, Kaiser Permanente was described by some SNF staff members as being much more difficult to work with than other MA plans. These interviewees reported that Kaiser Permanente more rigidly enforces requirements for patient care, imposing comparatively higher levels of case management, higher in-house staffing requirements, and shorter lengths of stay. It was also reported that Kaiser Permanente tends to have sicker patients who “bounce back most often” (23_A Director of Nursing).

Mechanisms used by MA plans to influence SNFs’ care of their members (2.b)

One of the main topics discussed with SNF staff members were the various mechanisms MA plans use to influence the care provided by SNFs. The following section outlines the key mechanisms highlighted by interviewees that MA plans use to influence care: case management (2.b.i), utilization review/pre-authorizations (2.b.ii), selective

contracting, (2.b.iii), financial incentives (2.b.iv), length of SNF stay (2.b.v) and discharge (2.b.vi).

MA plan mechanism: Case management (2.b.i)

Case management was one of the main mechanisms used by MA plans to influence care mentioned by interviewees, regardless of role and SNF type. The purpose of case management was described by a director of nursing as: “They want to get them [the patient] home, out of our setting into the next setting which is their home with home health as quickly as possible, because it's a lower rate of pay.” (9_B Director of Nursing). Case management is used by MA plans to track patients’ progress in therapy and clinical care (2.b.i.1). SNF staff expressed frustration with the arduousness of MA plan case management (2.b.i.2), but stated that having good communication between their team and MA case managers can help alleviate the frustration (2.b.i.3).

MA plan case management requirements. (2.b.i.1). Information needed by MA case managers varies, but is primarily focused on progress in therapy (physical therapy primarily) and medical progress. A corporate executive explained that:

...the managed-care companies pretty much tell us what they want on that report....Typically, therapy has quite a big section, nursing has some part of it and social services may have some part of it [the report]. [The report is] generally a comprehensive look at the patient and their progress (6_C Corporate-level Executive).

Most MA plans require updates be sent weekly to authorize further lengths of stay. If patients plateau or reach their goals, then the discharging process begins.

Frustration with MA plan case management (2.b.i.2). A few interviewees expressed frustration with the burden of case management – most MA plans require their own forms as well as frequent faxing, emails, and phone calls. A director of nursing described the cumbersome task of submitting (often by fax machine) separate forms for each insurance company:

It can get very confusing for a [SNF] case manager, because their [MA plan] requirements are weekly updates, and they're driving the bus. And it's a very rigorous, time-consuming communication. It has to be by fax...I think for a case manager here, once you get all of those insurances, let's say your case load is 25, and let's say 15 are insurances – your hair's on fire.[I wasn't a clinician but] I was just standing in front of a photocopier, or printing rehab notes and faxing it, and then waiting for the next day (24_B Director of Nursing).

One director of nursing further described their frustration with MA plans' requirement of submitting patient reports via fax: "But they never actually look at the resident or find out like yes on paper they may look okay, but this is the actual real story of what's going on and they need more time" (9_B Director of Nursing). Still, interviewees explained that the SNF has to be willing to do what the MA plans require otherwise they may not get the authorization for further treatment approved and may lose the MA plan contract if their SNF is deemed too difficult to work with.

Communication between SNF staff and with MA plan case managers is critical to MA plan case management (2.b.i.3). Many interviewees (from multiple disciplines and both SNF types) expressed that communication within their team and with MA case managers is

critical to MA plan case management. First, most SNFs have daily meetings to go over all of their skilled rehabilitation patients' progress. Those meetings typically include the administrator, nursing director, therapy directors (physical, occupational and speech), social services, and the business office managers. Explained a director of nursing:

We do have daily meetings to go over everybody, what their insurance is, what their estimated length of stay is based on what our goals are and where we are to see if we're meeting both therapy wise and clinical wise (14_A Director of Nursing).

Second, many interviewees reported that having a working relationship and communicating well with MA case managers is critical. One social services director of a LTC facility described how their long tenure at the SNF has enabled them to forge productive relationships with many of the case managers from the various MA plans.

Since I've been here for so long, I do have a really good relationship with most of them. So, I think because of the relationship that I have with the case managers, we're trying to work together on what [is] the best discharge plan and utilizing the insurance days coverage so we're all kind of satisfied with what the outcome is. So, right from the beginning when the resident is coming into the facility, I'm already speaking to the case managers and, "This is what we got to do to get them out timely and safely and appropriately and making sure that we are properly discharge planning." (6_B Director of Social Services).

With larger MA plans, however, interviewees reported little opportunity to build rapport with case management staff because they are speaking with a different case manager nearly every

time. This makes negotiating with the MA plan for length of stay and the discharge date more difficult. One director of admissions described this difficulty:

When it is a consistent person, it's a little easier to negotiate that length of stay because you build a relationship between us and them...When it's...a different case manager each time, then there's no rapport built so then it can be a little bit more challenging for us to come to terms as far as what's best for the patient (6_E Director of Admissions).

Most communication and case management is done via fax or phone with MA plans. However, a few interviewees reported that some insurers will send or have case managers work within the SNF facility. Though rare, interviewees felt that this can be helpful so that the MA case manager can set eyes on patients rather than relying on paperwork from a fax or phone call. Kaiser Permanente, in particular, is one of the main MA plans that has onsite case managers to oversee all Kaiser Permanente patients. Reported an administrator:

Kaiser's different in the sense that they're here on site. And so we're interacting with them on a daily basis. I feel like it's probably a better model to some degree, because they're able to put their eyes on the patients and they work directly with our staff. I mean they can actually see whereas when it's just a review over-the-phone, they just go off of the medical chart and what's being recorded. And that puts a lotta pressure on us to try to paint the best picture possible. (29_B Administrator).

Two interviewees mentioned that some MA plans will have a care coordinator come to the facility to help with specific patients who are at a high risk for readmission. Said one of these individuals, a director of nursing:

They [MA plan] also brought a care coordinator into the building. So she is kind of an extra person who visits with the patient, kind of troubleshoots the problems that may be causing that patient to go back to the community and then back into the health care system quickly (12_A Director of Nursing).

Overall, communication was described as a key piece in working with MA plan case managers. Being able to describe and paint the most accurate picture of the patient's progress to the MA case managers is necessary to ensure that patients receive the appropriate care and coverage. As some interviewees described, in a way they act as advocates for their patients to the MA case managers.

MA plan mechanism: Pre-authorization and utilization review requirements prior to SNF admission (2.b.ii)

Prior to a patient's admission to a SNF, most MA plans require facilities to get a pre-authorization. Obtaining prior authorizations is typically the responsibility of directors of admissions. One director of admissions described how the process can be cumbersome:

Depending on the insurance, it can take one to two days or sometimes it's taken five...some of them are really slow to approve a stay. So the hospital gets frustrated 'cause they're wanting to discharge the patient and need the bed. Patients are frustrated 'cause they want out of the hospital, but we can't do anything until the insurance approves them (6_E Director of Admissions).

Once an authorization is obtained, the directors of admissions described that most initial authorizations are for five to seven days and then SNFs must submit documentation to the MA case managers to justify lengthening the patient's SNF stay.

MA plan mechanism: Selective contracting with ancillary service providers

(2.b.iii).

Most interviewees reported that they use select labs and imaging companies for their patients regardless of their insurance. However, Kaiser Permanente typically has select providers of ancillary services whom SNFs must use for their members. As one administrator described:

We just contract in general...I've never had a managed care with the exception of Kaiser will dictate where that person goes...from the ancillary standpoint but traditional managed care is whoever you're contracted with (29_B Administrator).

MA plan mechanism: Determine their members' lengths of SNF stay (2.b.iv).

Many SNF staff members discussed how MA plans determine the length of SNF stay for their members. Some reported that specific plans have expectations of how long a patient will stay wherein the shorter the stay, the better. A few interviewees from both stand-alone SNFs and LTC facilities mentioned that some MA plans use queries or an algorithm to determine the length of stay for a patient. Explained a director of nursing:

A patient would come in, and they would plug them into their little template based on their diagnosis and functional level. And they would then spit out a query date for when they thought they needed to be discharged. And that query date, the facilities were bound to try to stick to that in order to stay on the preferred provider list. So oftentimes that drove the discharges more than the functionality of the patient...well, as they found out, they were having a lot of return to hospitals – they'd go home, and they'd be back in the hospital within a week or two (12_A Director of Nursing).

A community liaison echoed the same sentiment when they described how:

There are parameters and they kind of dock you a little bit. I imagine that there's like this kindergarten score card in their office with gold stars. They're like, "Oh, they don't get a gold star. They weren't in those parameters." So length of stay is a big piece (19_A Community Liaison).

However, an administrator described how MA plans are moving away from those templates because MA plans are now recognizing from experience and from the literature that "patients who stay longer in a skilled nursing facility have a lower return-to-hospital rate" (29_A Administrator).

Other interviewees stated that many times the MA plan will determine the length of stay by how well a patient is making progress both physically and clinically. If a patient is plateauing in their progress then the MA plan will typically set a discharge date. MA plans are not looking to get the patient back to their level of functioning prior to their hospitalization, they are simply looking to get them stable enough to send home to a lower-cost setting. Explained a corporate level executive:

They are not looking for us to rehabilitate back to [the] prior level or to the full capacity that the patient may be able to achieve... You know our goal is to get that patient to the place where they can be managed at a lesser cost and still have care provided (6_C Corporate-level Executive).

MA plan mechanism: Determine their members' discharge dates (2.b.v).

Once a length of SNF stay is determined, MA plans typically set a discharge date for their members. The SNFs may have some say in the discharge (if they think it is too early),

but for the most part the MA plans make the final decision. A few interviewees described how the decision by a MA plan to discharge a patient may not take into account their social situation at home (2.b.v.1). The short lengths of stay and early discharges were described by a few interviewees as increasing the likelihood of rehospitalizations (2.b.v.2). Patients are given the option to appeal their discharge to the MA plan, however, they are more often lost than won (2.b.v.3).

Most staff members from both LTC facilities and stand-alone SNFs felt that some MA members are discharged too early. Said an administrator:

Our HMO payers are much more aggressive about reducing the length of stay and getting patients to a lower level of care sooner, where it is just aggressive. You're sending them home much less independent than you'd be sending a [FFS] Medicare patient home (29_B Administrator).

Some interviewees felt that money is the motivating factor for MA plans to discharge patients earlier and to a lower-cost setting. The director of social services even went as far as to describe the healthcare system as corrupt:

When...you've got a...healthcare system, as corrupt as it is...you're just finding another way to make money off of people in a way that they can't possibly succeed...The insurance companies are focused on making as much money as they can and everyone knows that. So we're supposed to get them [MA patients] out and get them home. If we want them to come here, we have to get them home as quick as possible. Keep the stay as short as possible for the money side of it (28_B Director of Social Services).

The social situation for the patient at home is not taken into account by MA plans.

(2.b.v.1). Some interviewees felt that MA plans only look at the clinical progress of a patient and do not take into account the social aspects or the home situation when undertaking discharge planning. This is in contrast to SNF staff who look at the patient as a whole instead of just clinically. Said a director of nursing:

That's what makes it a little bit different in a skilled world versus acute care. [In] acute care they're focusing on that primary issue trying to make sure that that's being managed. Then when they come to us, we are focusing on that whole person, and it's not just what they primarily came in for. It's what they can go home being able to do on their own, or with whatever support (11_A Director of Nursing).

Therefore, some patients may be medically ready to discharge, but their social situation makes it inadvisable or even unsafe for discharge. As one director of social services of a stand-alone SNF expressed:

If we're saying, "Hey, we really need a little bit of extra time, because this person is a caregiver for their husband or a this or a that," the response is [from the MA plan], "Well, then, they need to just go find somewhere to go for a respite stay." I think that comes back to just the whole system in general being so money-driven. We've created a monster (28_B Director of Social Services).

However, others felt that it is not the SNFs responsibility to take into account patients' social situation at discharge – that their only goal is to get them medically stable and medically ready to discharge. An administrator from a LTC facility explained that:

...social is a little bit harder. Like social reasons really aren't a skilled need. I can't skill for a social reason, and so we understand that, and as a certified case manager, like that's nothing new to us. (24_A Administrator).

Early discharge dates for MA members from SNFs put the patients at risk for rehospitalizations. (2.b.v.2). Many interviewees from various roles and types of SNFs stated that they felt that if MA patients are discharged too early and without the necessary support at home then they run the risk of rehospitalization. As one administrator from a LTC facility described:

If you're getting discharged too soon, they're [MA members] just gonna end up right back in the hospital...and a lot of times they do. And it might not even be from here. But once they get home, they'll have a decline very quickly and go back [to the hospital] (1_A Administrator).

A director of nursing from a LTC facility echoed a similar sentiment stating, "I think on some occasions, it might be where the managed care plan might feel that the patient is ready for discharge before we really feel it's a safe discharge...So it's kind of really hard to fight that battle and it's kind of having to justify and prove that for an additional length of stay, just to make sure it's a safe return home without a rehospitalization" (14_A Director of Nursing).

A few interviewees reported Kaiser Permanente patients are at the greatest risk for readmission. A director of nursing stated that they see Kaiser Permanente patients discharged far too quickly (more aggressively than other MA plans) and that they have high readmission rates:

They will tell us when a patient has to discharge. That's where we have to fight for them, and sometimes we don't win. Sometimes they go home, in our opinion, too early. We could do more for them. And that's unfortunately where you'll get into that potential bounce back... I've had five patients...returned to the hospital within 48 hours after discharge, and patients we knew should be here a little longer (23_A Director of Nursing).

A few interviewees, however, felt that having the MA plans determine the discharge date helps to hold them accountable, serving as a kind of checks and balances. One LTC facility administrator felt that it helps to ensure that SNFs are not keeping patients longer than necessary for reimbursement. Echoing a similar sentiment, a director of admissions from a different LTC facility stated: "Sometimes we may need that push to really push them [the patient] along a lot faster than maybe we would typically" (6_E Director of Admissions). A few interviewees felt that the timing of the discharges are appropriate. Even if they did not feel comfortable with the discharge, most interviewees felt able to tell their concern to the MA plans and to advocate for their patients. A director of rehabilitation explained:

That's also where making sure that we're actually providing all of the information for their doctor or case manager, whoever it is that's reviewing it, to know this is why we feel like this patient needs to stay longer, versus if we're not giving them all of the pieces of the puzzle it's going to be easier for them to say "No, you're [the patient] independent with this. You can do this. This was your prior level. You're doing those things. Why can't you go home?" (6_D Director of Rehabilitation).

MA members can make an appeal to their MA plan about their discharge date.

(2.b.v.3). When SNFs are unable to negotiate a longer stay, they can still provide patients and family members with information on how to make an appeal to the MA plan. However, there were mixed reports of how often patients win an appeal – a few stated that patients are often times successful, but others stated that they felt that there are more denials than wins. One administrator even described that when the SNF speaks to the patient about making an appeal, the MA plan tells the SNF not to place blame on them (the MA plan) for the early discharge. Said an administrator:

They'll [the MA plan] say to us we're not allowed to say that they do that. I mean, that will actually be part of the conversation where they'll say, "You cannot tell our members that we are applying pressure," because they don't want to be the bad guy. Of course, we don't want to be the bad guy either. It would be much easier for us to say, "No, we want you to stay, but the insurance company's pushing you out." (11_B Administrator).

MA plan mechanism: MA plans do not financially incentivize SNFs, but rather provide more referrals, renew their contract or increase the reimbursement rate if SNFs provide quality care to their members (2.b.vi)

The vast majority of interviewees stated that their SNFs are not given financial incentives by MA plans such as bonuses for fewer readmissions. SNFs are instead rewarded by MA plans with more referrals if they do a good job – and referrals to a SNF are vital to maintain their census: “you might capture a larger volume of patients if that payer source is happy with your performance overall” (29_B Administrator). SNFs are also rewarded for

good outcomes by having their contract renewed: “It's more just a ‘do a great job or we probably won't renew your contract next year’” (6_E Director of Admissions). One administrator went on to describe that if a SNF performs well, they have the potential to adjust their reimbursement rate when the contract is renegotiated at the end of the year:

With certain contracts, they’ll do reviews with the team or with the corporate office...but we would be graded, so to speak, and compared to the other facilities that had that contract and the only incentive was we would get more patients and then we would be open to renegotiate the contract at the end of the year” (6_A Administrator).

A few interviewees did describe how some MA plans incentivize SNFs to take potentially more costly members by offering them “carve-outs”. To ensure that they do not lose money by caring for a more costly patient such as someone on chemotherapy, SNFs can negotiate with the MA plan to receive additional reimbursement to cover the costs of expensive chemotherapy drugs or other high cost services. Reported an administrator:

So if there is equipment costs that are really high or medication that is really expensive then we can call directly and say, "Look you really want this patient placed because it's going to cost you \$800.00 or \$750.00 a day here versus you know \$2800.00 a day in an LTAC [long-term acute care] or \$4500.00 a day in the hospital. We'll manage them but we want you to carve this out (9_A Administrator).

While most interviewees described not receiving financial incentives per se, one administrator stated that they believe MA plans financially incentivize their own employees to keep costs down by limiting lengths of SNF stays:

Oh, I'm sure they report to somebody, because I'm sure that their job performance is measured. ...It's kind of counterintuitive, but our Kaiser nurse who's here on site is bonused based on length of stay. And so they're saying that this is no longer a priority [short length of SNF stay], but when they're incentivizing somebody to push patients out faster, it kind of is rewarding a behavior that we're supposedly trying to move away from (29_B Administrator).

Summary

To summarize, most SNFs rely on MA plans to supplement their FFS beneficiary referrals and to help with referrals during downtimes such as seasonal dips. Contracts with MA plans are initiated by either SNFs or the insurance company and are typically based on filling a need: SNFs need referrals and MA plans need SNFs to provide care for their members. MA plans typically have a number of requirements that SNFs must meet in order to enter into a contract with them (e.g., short lengths of stay, low rehospitalization rates, private rooms, etc.). As one administrator mentioned, SNFs must determine if those requirements from MA plans and the typically lower payment received from those plans compared to Medicare FFS reimbursement are worth the potential for more patient referrals. For some SNFs, Kaiser Permanente is a coveted MA plan to work with because they are very helpful in filling beds and having a steady referral basis. However, Kaiser Permanente can be difficult to work with and their patients are perceived as at a greater risk for rehospitalizations compared to other MA and FFS beneficiaries.

Once a SNF has entered into a contract with a MA plan, the insurer uses a number of mechanisms to control how their members are cared for while in the SNF. Case management

was mentioned as one of the most frequently used mechanisms of control. Under case management, SNFs have to report to MA case managers on a weekly basis to provide them with updates on the progress of their members. Some interviewees felt that the burden of the case management could be high because of inconsistencies in requirements among the MA plans and the archaic method of communicating information via fax or phone. Some interviewees reported that having good communication with MA case managers about their members was vital to ensure patients had the appropriate lengths of stay in the SNF and to maintain their MA plan contracts. Prior authorization (i.e. utilization review) is another mechanism used by MA plans to ensure that their members are in need of post-acute care and rehabilitation in a SNF setting. Without a prior-authorization, MA members typically are not able to discharge from the hospital to the SNF. The majority of SNFs are able to use their own outside contractors for such ancillary services as lab work and imaging. The exception is Kaiser Permanente which, in the pursuit of cost savings, requires that certain vendors be used. The lengths of SNF stay for MA plans were often described as being pre-determined based on patient diagnosis. Some interviewees reported that MA plans use algorithms to determine length of stay. MA plans typically want to see their members have shorter lengths of SNF stay and be discharged to a lower-cost setting (typically, home with home health care), as quickly as possible. Some interviewees described the lengths of stay and discharge plans imposed by MA plans as aggressive, thereby heightening the potential risk for rehospitalization. A few SNF staff members reported feeling comfortable enough to stand up for patients who they believed were being discharged too quickly. However, sometimes MA

plans would still move forward with a discharge and in those circumstances, SNFs would recommend patients appeal the discharge, but those cases are rarely won.

Most staff members stated that their SNFs do not receive any financial incentives from MA plans. The incentive to provide good care to MA members is to maintain their MA plan contract and to ensure the continued flow of referrals. Most MA plans know that SNFs need their referrals and use that as leverage to make SNFs meet their requirements and standards.

Theme 3 – SNFs Prefer to Serve FFS Beneficiaries over MA Members

Nearly all interviewees (regardless of role and type of SNF) mentioned that they and their SNF would prefer to care for FFS beneficiaries instead of MA members. The primary reason for this preference is that SNFs are reimbursed more for the care of FFS beneficiaries compared to MA members (3.a). SNFs also feel FFS beneficiaries are easier to admit from the hospital (3.b) and that they have more autonomy in the care of FFS beneficiaries compared to MA members (3.c). Overall, SNFs provide equal care to patients regardless of payer source, but some interviewees have seen SNFs limit MA members' therapy to save their facility money (3.d).

FFS reimbursement rate is greater than MA plans' reimbursement rate (3.a).

The primary reason that SNFs prefer Medicare FFS beneficiaries over MA members is because the reimbursement rate for FFS patients is greater than the flat, capitated rate received from MA plans. Indeed, the difference in reimbursement can be as much as a few hundred dollars per day. A few interviewees stated that if they have two patients, one with

FFS and one with MA coverage who need skilled rehabilitation, they would always choose the FFS beneficiary. Reported a community liaison:

The reimbursement [MA] is terrible. [The FFS] Medicare here, our reimbursement, roughly [is] based off the RUG level and how acute their illness is, can range anywhere from \$550.00 to \$625.00 a day versus it's a flat-rate for United Health Care no matter what's wrong with them. Their reimbursement for us is \$300.00 a day.

(19_A Community Liaison).

This community liaison went on to state that “even our Medicaid rate is almost higher than our managed care rate...my director actually told me to put more Medicaid in the building over managed care” (19_A Community Liaison). As described previously, a few interviewees stated that they keep MA contracts as a supplement to Medicare FFS with the goal being to fill their beds primarily with FFS patients.

Easier to admit FFS beneficiaries compared to MA members (3.b).

Two directors of admissions from LTC facilities reported that FFS beneficiaries are easier to admit compared to MA members. According to one:

They're [FFS beneficiaries] just easier. As long as they've had three midnights [in the hospital], you could take them any time of day, any day of the week. A lot of these managed care plans require authorization, which is unobtainable on the weekend, usually (24_C Director of Admissions).

However, one admissions director noted that it is getting harder to admit FFS patients because hospitals are keeping patients as observation stays instead of fully admitting them – wherein they speculated that it is probably so that hospitals can avoid the penalty for

readmissions within 30 days. To receive post-acute care and skilled rehabilitation in a SNF setting, FFS Medicare requires patients to have a qualifying hospital stay where they are admitted in the hospital for three consecutive nights prior to their SNF admission (CMS.gov, n.d.). Observation stays in the hospital where the patient is not fully admitted do not count as a qualifying hospitalization and patients are ineligible to receive skilled services in a SNF facility (CMS, n.d.j.).

SNFs have more control over FFS beneficiaries' care compared to MA members (3.c).

Many interviewees felt they had less autonomy in the care for MA members because what the MA plan says typically goes. In contrast, pertinent staff at the SNF can act as a team in managing the overall care of Medicare FFS beneficiaries, their length of stay and discharge. A few SNF staff members described FFS as much more patient-centered. Said one administrator:

I think that traditional Medicare has a different kind of oversight that allows us to do what we do well. I mean, there's just so much burden that comes with managed care (11_B Administrator).

That burden was described by interviewees as having to constantly justify to the MA plans that the care provided is necessary or, as one director of nursing from a LTC facility described:

We don't have to go ask mom and dad for permission. Which makes it easier to do better for those patients, and not to have that big brother looking over you" (23_A Director of Nursing).

A few interviewees reported that having more autonomy and say over the care of FFS beneficiaries allows them to provide better care for the patient with the potential for better outcomes such as fewer rehospitalizations compared to MA members. As the director of nursing went on to say:

We do have some leeway to be able to do a better job with those patients [FFS].

[Consequently, the] bounce back [to the hospital] is way down when you separate that out. That's something I track on a monthly basis. Between Medicare and different insurances [MA plans] (23_A Director of Nursing).

Many SNF staff members reported FFS beneficiaries typically have longer lengths of stay than MA members. As described earlier, MA plans want their members in and out as quickly as possible from the SNF. FFS beneficiaries do not have those similar pressures from Medicare and so their stays are typically longer. However, a few interviewees described how FFS beneficiaries without a secondary insurer (e.g., Medigap, Medicaid) prefer to discharge from the SNF by day 20 so as not to incur Medicare cost-sharing expenses that begin on day 21 (on day 21 of a SNF stay, FFS beneficiaries are responsible for 20% of the daily cost of their care). Explained a director of rehabilitation:

Every Medicare patient has 100 percent for 20 days, and then after that there's a copay issue. Maybe they have a secondary, maybe they have Medicaid, maybe it's their own funds. Sometimes they can't afford it. So, we do what we can as quickly as we can, because they don't have the money to pay Day 21, and we know that. We meet with those patients and those families right up front within the first 48 hours, usually sooner to note what their expectation is, what their goals are so that we're not

fumbling through for the first week providing services they don't need, because they don't need stairs, 'cause they don't have any stairs; whatever it may be (29_A Director of Rehabilitation).

One director of rehabilitation even described how they have seen the unfortunate circumstance when SNFs themselves will send patients home on day 20 because they know that some patients do not have the means to pay for the coinsurance starting day 21. When FFS beneficiaries do not pay their portion of the bill starting on day 21, “it's not uncommon for us [SNFs] to have to write off a portion of that, because we'll never collect it” (29_B Administrator).

Difference in treatment of patients based on insurance type (3.d).

Most interviewees reported that their SNFs treat patients the same regardless of payer source. A director of nursing, for example, indicated that their clinical staff do not look at the payer source for their patients. Rather, the payer source matters more at an operational level with regards to the administrator who is trying to manage the facility's finances. However, a few interviewees felt that payer source also matters to the rehabilitation team with some staff members seeing SNFs limit the number of hours of therapy for MA members or provide therapy for them in a group setting to save their facility money. Reported the director of nursing:

I've been in buildings in the past, not very long, that here was your Medicare patients, and here's your insurance patients, and there was almost different therapists, different services....And I do at times, sit in meetings where we review our skilled patients and, “Well, you want to be careful, 'cause we're only getting this much money for that

[MA] patient. Don't spend too many minutes with them." And it's like, "No, no, no. We have to do what we need for those patients regardless of how much we're getting paid" (23_A Director of Nursing).

Summary

Respondents expressed a strong preference to admit FFS beneficiaries rather than MA members. The reimbursement rate for FFS beneficiaries is far greater than that from most MA insurance plans. In addition, FFS Medicare affords SNFs more autonomy in the care for their beneficiaries as opposed to patients who have MA coverage; they argue that this autonomy will lead to better outcomes for patients and fewer rehospitalizations. MA plans typically exert considerable oversight over their members, which can be burdensome for many SNFs. Most interviewees stated that while they may prefer FFS beneficiaries to MA members, they do not provide different clinical care to patients due to their insurance. However, a few interviewees described that they have seen the therapy provided to patients be vastly different due to their insurance coverage.

Theme 4 – SNF Value-Based Purchasing Program (SNF-VBP) – Protecting Access to Medicare Act (PAMA)

Penalties promulgated under the SNF-VBP were scheduled to begin a few months after the interviews for this study were undertaken (in October 2018). Interviewees were asked about their familiarity with the upcoming penalties for SNFs that have 30-day readmissions post hospital discharge. The majority of SNF staff members were familiar with the penalties. Among those who had not heard of the SNF-VBP penalties were two directors

of social services (one from a stand-alone SNF and one from a LTC facility), a director of rehabilitation from a stand-alone SNF, and a business office manager from a LTC facility.

The following theme outlines the staff members' thoughts about the 30-day readmission penalties imposed under the SNF-VBP program (4.a). Some interviewees felt the penalties were fair (4.a.i). The majority, however, felt that the penalties were potentially unfair (4.a.ii). The majority of SNF staff members feel confident in the ability of their facility to avoid penalties (4.b.i). However, many interviewees identified a number of potentially adverse effects of the penalties on their competitors in the Denver SNF marketplace (4.b.ii). Staff members highlighted a number of adaptations that SNFs have made in anticipation of the upcoming penalties (4.c).

SNF staff members' thoughts about potential penalties under SNF-VBP. (4.a).

There were mixed feelings among interviewees regardless of title and SNF type when asked about the SNF-VBP penalties (for those who were unfamiliar, I explained the upcoming penalties to them). Quite a few interviewees felt that the penalties for SNFs were fair (4.a.i) because they have the potential to hold facilities accountable for the care provided (4.a.i.1), spur SNFs to provide better care for patients (4.a.i.2), and avoid monetary waste (4.a.i.3). However, the majority of SNF staff members felt that the penalties were unfair (4.a.ii). Two interviewees stated that the penalties will be burdensome and time-consuming (4.a.ii.1). Additionally, some felt the penalties might decrease quality of care for patients (4.a.ii.2). Others felt the penalties were unfair because some readmissions are out of their control (4.a.ii.3), such as hospitals discharging patients too quickly, patient-level factors (e.g., acuity), and the post-SNF discharge environment.

Some SNF staff members see the penalties under SNF-VBP as fair. (4.a.i).

A few interviewees felt that the upcoming penalties for SNFs for 30 day rehospitalizations post-hospital discharge were fair. They believed that the penalties help to hold SNFs accountable for the care they provide (4.a.i.1) and thus have the potential to better the quality of care and outcomes for SNF patients (4.a.i.2). In addition, a few felt that the penalties will help reduce Medicare fraud (4.a.i.3). Nearly all those who believed the penalties were fair felt that their SNFs would do fine because they were already taking good care of their patients. One administrator from a LTC facility even stated that they were excited about the challenge because they want to see good outcomes for all of their patients.

SNF-VBP penalties will hold SNFs accountable for the care they provide. (4.a.i.1).

A few interviewees said they were not surprised to see the focus on penalties turn from hospitals to SNFs. “Well, I think we’re moving toward a payment system that’s driven based on value and on performance,” according to one corporate level executive, “and it makes sense to me that we’re doing it so, philosophically, I think I agree with the concept.” (6_C Corporate-level Executive). A few interviewees stated that facilities will start making changes once they start getting financially penalized. Said a clinical liaison:

Sometimes you just have to put the fire on someone's butt and when there's money on the line, the administrator of that building is going to make damn sure that he has an entire staff in line and on the same page about patient care (19_A Clinical Liaison).

SNF-VBP penalties may lead to better clinical outcomes (4.a.i.2). Several interviewees believed that the increase in accountability provided by the penalties has the potential to spur better outcomes and quality of care for SNF patients, while promoting cost

efficiency. “And it's not a bad thing,” explained a director of nursing. “It's just to make it safer and [improve] quality care, and what we're being paid for is for is like faster, quicker, and cheap – and save the dollar. Make sure that we're not wasting money.” (24_B Director of Nursing). A few interviewees felt that the penalties will force SNFs to focus on ensuring that patients are well cared for by a highly trained staff, thereby helping to improve SNF care overall. A director of rehabilitation argued that: “If we're able to really shine and show that we can take care of these patients and actually help them to avoid being re-hospitalized, it's better for us, it's better for the patient” (6_D Director of Rehabilitation).

SNF-VBP penalties may reduce fraud. (4.a.i.3). A few interviewees felt the penalties will help to decrease Medicare fraud. One administrator from a stand-alone SNF described their experience with patient care in the past where SNFs thrived off patients who were in and out of the hospital:

And you clearly don't want to have a health system that rewards readmissions. It used to be that frequent flyer at home, they're your favorite patient, because they're gonna come back and you're gonna keep on seeing them. And that fills the bed and then you can reimburse again and again and again. And clearly that's not the best outcome for the patients (29_B Administrator).

Echoing the same concerns, a director of nursing from a LTC facility described that they have seen a trend where patients are sent back to the hospital by SNFs when they felt that the patient could easily have been cared for in the SNF. “I see their point of you're [the SNF is] penalized for the rehospitalizations. I see people go to the hospital all the time and they don't really need to go” (9_B Director of Nursing). By penalizing SNFs for avoidable

rehospitalizations, it holds SNFs accountable for the care they provide and that they cannot simply send a patient back to the hospital if not medically necessary. While not enthused by the potential for penalties, several interviewees recognized that those penalties were necessary on the part of CMS to help decrease fraud and monetary losses in the SNF setting.

Most SNF staff members see penalties under SNF-VBP as unfair. (4.a.ii).

Most staff respondents felt that the penalties under SNF-VBP would be unfair. Two interviewees believed that trying to avoid the penalties could create additional burdens for SNFs, including extra paperwork (4.a.ii.1). Some staff members argued that the penalties could decrease the quality of care for their residents (4.a.ii.2). Moreover, most felt that rehospitalizations were often out of their control (4.a.ii.3). Highly acute patients are frequently discharged out of hospital too quickly; as a result, most often need to be readmitted back to the hospital shortly after SNF admission. There are also a variety of patient-level variables that make it difficult to care for patients and avoid rehospitalization. One interviewee felt that providers (e.g., home health agencies) who care for providers post-SNF discharge should also be held accountable should rehospitalization take place.

Efforts to avoid penalties under SNF-VBP may be burdensome and time-consuming to SNFs. (4.a.ii.1). A few study participants (directors of nursing) believed that the upcoming penalties would put unnecessary burdens and stresses on SNFs. One director of nursing from a LTC facility, who already felt a lot of pressure from being over-regulated said:

I think the more regulations that we're up against, it's just harder to provide the just genuine, normal care that we can for our residents. There's so much that we're up

against, being regulated for, and [that] can be frustrating to the clinical team, frustrating to the providers. So, I just think it's just bringing more challenges to the table for us to have to jump through hoops to make sure we're doing what we need to be doing, but as well, making sure that we're taking care of our residents (11_A Director of Nursing).

Penalties under SNF-VBP may lead to decreased quality of care in SNFs. (4.a.ii.2).

The same study participants who saw the SNF-VBP penalties as burdensome also saw them as potentially leading to a decrease in care quality. They expressed frustrations in having to “jump through hoops” to avoid penalties to the extent that doing so takes attention away from patient care and leads to poorer quality care. As a director of nursing from a stand-alone SNF described:

I don't agree that penalizing buildings for anything is the way to effect changes. I think all it does is put pressure on the building, and I think it decreases the quality of care...The penalties that are out there, I don't think they do anything to affect better care. All they do is create stress and challenges (12_A Director of Nursing).

Some rehospitalizations from SNFs are unavoidable. (4.a.ii.3). Many SNF staff members expressed frustration with the potential for penalties because many rehospitalizations are out of their control and unavoidable. “I get it,” admitted a director of nursing, “but at the same time I think it's kind of unfair 'cause there's sometimes you just cannot prevent that rehospitalization.” (11_A Director of Nursing). Several staff members in LTC facilities reported seeing patients who are discharged from the hospitals to SNFs too quickly and in acute states where they are sent right back to the hospital. Those interviewees

felt that they should not be penalized for those rehospitalizations where they knew upon seeing the patient that they were going to have to go right back to the hospital. Explained a corporate-level executive:

It feels very difficult because we don't always control when people come to us so sometimes we feel like they come to us too soon outta the hospital and we think it's almost a foregone conclusion that they're gonna end up back in the hospital and we wish we had more control (6_C Corporate-level Executive).

As previously mentioned (see 1.b.i), interviewees reported seeing more patients with higher acuity than previously. These higher acuity patients are more difficult to care for and are constantly on the verge of requiring a rehospitalization. As one director of nursing from a LTC facility described, if SNFs try to keep those patients in the SNF to avoid penalties then it can be dangerous for the patient:

As far as our facility goes, I don't like the fact that we'll take a penalty on it because some people really do need to just go to the hospital especially with a higher acuity resident that we take with them already being so sick. It's an easy tipping point for them either way and it's something that we can't always prevent. So in that case you know trying to keep the resident in your facility that really should be in the hospital can be dangerous. (9_B Director of Nursing).

Staff members, largely from the stand-alone SNFs, expressed frustration with being subject to regulations requiring them to provide patients with choice that may be counterintuitive to their rehabilitation and recovery (e.g., choice in their diet, participation in therapy (physical, occupational, speech)). SNFs are required to protect residents' rights under

the 1987 Nursing Home Reform Law (part of the Omnibus Budget Reconciliation Act of 1987), which outlines that patients be treated with dignity and respect and afforded autonomy in their care as outlined in the Residents' Bill of Rights (The National Long-term Care Ombudsman Resource Center, n.d.). They reported that in hospital settings patients have much less autonomy and are under strict clinical guidelines. However, once they enter into a SNF, patients have the right to make their own choices in their clinical and therapeutic care. Having to operate under such regulations and offer patients control over their rehabilitation places patients at risk for rehospitalization due to non-compliance with plans of care. Explained a director of rehabilitation at a stand-alone facility:

You tell people you have the right for your healthcare, you have the right for this. But yet, one percent of the population uses 90 percent of the Medicare money. And it's those people that use this system. There are sick people, which I completely agree with. But if the people aren't following with their recommended "You can only drink a cup of water three times a day. Yes, it's gonna bother you, but if you drink more than that, you're gonna go in the hospital [for fluid overload]." "Well, I want a gallon of milk." (29_A Director of Rehabilitation).

A few interviewees mentioned that non-compliance of patients in SNFs carries over to when they are discharged home. Respondents expressed frustration with being financially penalized for patients making poor clinical choices when they are home. A few mentioned that during the SNF stay, they will often have candid conversations with patients and families that the patient needs to go to a higher level of care such as an assisted living facility or LTC facility because they are unsafe to live at home. Interviewees reported that they can make

such recommendations to patients, but it is ultimately up to the patient and their families where they choose to live once discharged from the facility. Said a director of nursing:

We [can] recommend that they either move to an assisted living situation or tell the family, “you're gonna need to hire care in.” Then the family chooses not to do it, and the patient ends up back in the hospital. So all we can do is recommend. (12_A Director of Nursing)

Lastly, one director of nursing from a stand-alone SNF mentioned their frustration with the penalties because once the patient discharges home they have to rely on outside vendors (e.g., home health care agencies) to take care of the patient and keep them out of the hospital: “Well, I think we're caught between a rock and a hard place, 'cause we rely on so many different outside vendors and outside providers to make this a successful transition” (12_A Director of Nursing). In sum, a few respondents feel that it is unfair for SNFs to be penalized under SNF-VBP because it is out of their control once the patient goes home whether or not they get rehospitalized and thus, should not be penalized.

Effects of SNF-VBP on SNFs in Denver. (4.b).

All interviewees were asked to describe how they anticipate the upcoming penalties under SNF-VBP will affect their facility (4.b.i) and SNFs in general (4.b.ii). The following section details that many interviewees are hopeful that the penalties will not affect their SNF. However, many interviewees felt that the penalties could have overarching effects on SNFs in general.

Effects of SNF-VBP for interviewees' facilities. (4.b.i).

In general, SNF staff members (regardless of facility type and role within the SNF) were hopeful that their SNF would not incur penalties under the new SNF-VBP. There was concern and uncertainty expressed by a few, but overall most interviewees felt confident in the care that their SNF provides and in their outcomes obtained. Said one administrator:

Gosh, you know, I've seen so many changes. I mean, obviously, any time that they can take money away from you, it's not a good thing. I think it's just going to make us be more mindful of how we spend our money, and it's going to make us more mindful of the kind of care that we're giving. So, I'm hoping that [we'll] continue to just provide great care, and we won't be that impacted by it. That's my plan. (11_B Administrator).

The majority of interviewees said that they would not try to increase MA referrals to decrease the risk of penalties under the SNF-VBP, which applies exclusively to FFS Medicare. With the reimbursement so low for MA members, some interviewees preferred to take the risk of having penalties for rehospitalizations of FFS beneficiaries over admitting more patients with MA plans. As one director of admissions stated when asked if they would increase their MA business:

I don't think so. I think historically the Fee-for-Service Medicare has always reimbursed at a higher rate, so we're just going to maybe emphasize more of a focus on them and their overall clinical picture and their care, versus the managed plans. Because, again, the managed plans, they're a lot of work for little reimbursement. And

I hate to keep bringing up financials, but ultimately that's the bottom line. (24_C Director of Admissions).

Effects of SNF-VBP for SNFs in general. (4.b.ii).

While interviewees, regardless of facility type, were confident in their SNF's ability to avoid penalties, they believed the penalties would affect their competitors. In particular, some believed the primary effects of the penalties on other SNFs would be strained relationships with hospitals and a decrease in referrals (4.b.ii.1). Others felt that SNFs may become more selective in which patients they admit in order to avoid penalties (4.b.ii.2). Still others mentioned that SNFs may keep patients longer to avoid said penalties (4.b.ii.3). Overall, interviewees felt that the SNF-VBP would change the SNF marketplace in that poor performing SNFs would close or struggle to stay open because of the monetary losses from the penalties (4.b.ii.4).

SNF-VBP penalties may create strained relationships with hospitals and lead to a decrease in referrals (4.b.ii.1). As described earlier, having a good working relationship with a hospital and being on their preferred provider list is vital for obtaining referrals. A few interviewees mentioned that if SNFs start incurring penalties for having too many rehospitalizations then they are likely to start seeing fewer referrals to their facility. "I guess what it can do is affect again just the hospital and SNF relationship," explained a director of admissions, "because if the hospital doesn't think the SNF is doing a good job of keeping people home, they're not gonna want to send them to those buildings" (6_E Director of Admissions).

SNFs may be more selective in the patients they admit to their facility to avoid penalties under SNF-VBP. (4.b.ii.2). To avoid penalties, a few interviewees anticipated seeing SNFs become more selective in who they admit to their facility. Two interviewees from LTC facilities and two from a stand-alone SNF anticipated that SNFs will be much more choosy in who they will admit. However, a few of those interviewees expressed concern that this would force many of the sickest patients to have to go to poorer-performing SNFs because those are likely to be the only places willing to accept those patients. As an administrator of a stand-alone SNF described:

What you're going to see happen as a byproduct of these penalties is that facilities are going to have to be very selective about who they agree to take into their building to begin with and that we're gonna have to take on calculated risks. But those patients who are probably most in need of skilled nursing care are going to have a hard time finding facilities that are willing to provide the care for them, especially facilities that have a good record of providing good care and have a high star rating and a good reputation [because those SNFs won't want to take on the risk]. And so the alternative is going to be to go to facilities that don't have those things, that have nothing to lose if they get another ding or a readmission, that it's still better to capture that reimbursement while they can, because they're not getting the cream of the crop patients. And so it kind of rewards a system that's going to fail patients by being very selective about who you're willing to take the risk caring for. And I think that's a big mistake. (29_B Adminsitrator).

SNFs may keep patients in the SNF longer to avoid rehospitalizations and penalties under SNF-VBP. (4.b.ii.3). A few interviewees anticipated that SNFs in general might start to keep patients for longer lengths of stay to avoid penalties. One director of admissions of a LTC facility mentioned that they fear that some SNFs may keep patients in their SNF to avoid rehospitalization penalties, but at the detriment of the patient -- who many actually need to be rehospitalized. However, they also went on to describe that by avoiding sending the patient back to the hospital, they could potentially be helping the patient by not exposing them to hospital settings, where there is a higher risk for infections.

Penalties under SNF-VBP have the potential to weed out poor-performing SNFs. (4.b.ii.4). A few SNF staff members believed the penalties might weed out poor performing SNFs in the oversaturated SNF market in the Denver metropolitan area. As one director of rehabilitation from a LTC facility described:

I mean I do think that there will be...some places that just won't really be able to make it through it all, and then there's going to be some places that really shine. So I think it's going to start to weed out some -- maybe not be quite as saturated, or there might be some people that try to look at different alternative routes for what sort of niche is needed and still trying to maintain a census of some sort, whether it's more of a long term population, whether it's more of a neuro Parkinson's focus or who knows.

(6_D Director of Rehabilitation).

One administrator of a LTC facility stated that if other LTC facilities struggle to take care of their skilled rehabilitation patients, then they are likely to lose that Medicare business and revenue, thus essentially making them LTC only facilities. However, a corporate-level

executive of a LTC facility said that those LTC facilities that lose their Medicare skilled referrals are more likely to have to close their doors because relying on Medicaid as the sole source of income would not provide them with enough revenue. Two interviewees from LTC facilities also described how the penalties could potentially put stand-alone SNFs out of business because they have no other streams of revenue to rely on if they incur too many penalties for rehospitalizations under Medicare.

Adaptations by SNFs in response to potential future penalties under SNF-VBP. (4.c).

Interviewees described a number of adaptations made in an effort to stay ahead of the penalties for rehospitalization. One of the main strategies is to track rehospitalization rates and to focus on quality improvement (4.c.i). To prevent unnecessary rehospitalizations, SNFs are focusing on improving communication with physicians who provide care to their patients (4.c.ii). Others spoke of partnering with preferred home health care agency providers so they can ensure that their patients are receiving care from the best agencies possible (4.c.iii). A few SNFs have set up systems or programs to track their patients once they are discharged from the SNF, with a focus on preventing rehospitalization (4.c.iv). In a few instances, interviewees mentioned directly readmitting patients who are struggling at home back to the SNF (4.c.v). Lastly, a few interviewees said their SNF has not done anything in preparation for the penalties (4.c.vi).

SNFs focus on quality improvement measures to avoid penalties under SNF-VBP. (4.c.i).

CMS requires that SNFs track readmissions, which a few interviewees stated helps their SNF do quality improvement to avoid future readmissions and penalties. A director of

nursing and an administrator from a LTC facility described how they have monthly QAPI (Quality Assurance and Performance Improvement) meetings, as directed by CMS, with their entire skilled rehabilitation team and their medical director to discuss their previous months' patients and to determine what could have been done differently if there were rehospitalizations or poor outcomes. Said the director of nursing:

We have a QAPI meeting monthly that we take the data to, and kind of talk about what we could be doing differently, whether it's education for the nurses, education for the providers, or having those conversations with the case managers at the hospital (11_A Director of Nursing).

A few staff members from LTC facilities (primarily directors of nursing) mentioned that they use electronic medical records (EMR) as a tool to capture those errors or areas of concern as flagged by the EMR dashboard. They described that they use their EMRs both proactively while the patient is in the SNF to prevent rehospitalizations and also after a patient leaves (if they are rehospitalized) to determine what could have been done better while they were in the SNF. Said one director of nursing:

We also have a tool on our computer...that pulls the MDS data, and so there's what's called a radar report. So I can pull up a patient who's here, and it's a prognosticator of who could bounce back, based on the score that they have, in terms of their falls that they've had, or their skin, or their diagnosis (24_B Director of Nursing).

SNFs seek to foster good communication with providers to reduce risk of rehospitalizations and penalties. (4.c.ii).

Many interviewees felt that more work was needed to improve communication with supervising physicians in order to prevent unnecessary rehospitalizations. In particular, these interviewees expressed frustration in that sometimes physicians would simply send a patient back to the hospital rather than looking for solutions within the SNF. As one administrator from a stand-alone SNF described:

And that again is one of those exasperating things where a lot of the time it's the doctors who are following the patients that make that call. And my DON is saying "please let us take care of this in house. We're clinicians here too. And there's a lot of interventions that we can try here before you send the patient back there." So it's trying to change habits with our providers. Because if the doctor says "send the patient", it doesn't matter what we do. The patient has to go. The doctor trumps all. And so it's kind of holding us accountable for other people's poor judgment calls at times (28_B Administrator).

A few directors of nursing from LTC facilities stated that they are working with supervising physicians to foster better communication with nursing staff to come up with solutions to care for patients in-house rather than sending them out. One of these directors of nursing described how their SNF has partnered with a pulmonologist who is available to their facility as a second opinion. Another director of nursing mentioned that having only one physician in their SNF has helped avoid the confusion of who to call to triage a patient. Having providers and SNF staff on the same page helps to reduce rehospitalizations.

SNFs form partnerships with home health care agencies. (4.c.iii).

Once a patient is discharged from a SNF, it is important that they receive the appropriate care to prevent them from going back to the hospital. A few providers mentioned that they have narrowed their home health care networks so that they have preferred agencies that they will recommend patients use. As one community liaison described:

With home health companies, we had like 20 that were coming in the building and we said, "We don't need that many." We give the patient their choice, if they've used one in the past. If they haven't, we recommend, "Okay, we've vetted these people. We know they have good outcomes. Their rehospitalization rates are low." Because we don't want to be dinged for something home health did on their end. So we're looking at our downstream providers to really assist us in preventing that. A lot of people are doing that (19_A Community Liaison).

Having working relationships with select home health care agencies allows SNFs to ensure that their patients are well taken care of at home and are at lower risk for rehospitalization.

SNFs follow-up with patients once they leave the facility. (4.c.iv).

Interviewees stated the importance of tracking patients once they discharge from their facility as a way to avoid rehospitalizations and penalties. However, LTC facilities described being able to track their patients better than stand-alone SNFs because they see fewer patients and have fewer admissions. One LTC facility had already put into place a program to follow up with patients. The director of nursing described how they have a specific position set up within their SNF called a Transition Coordinator:

And that person actually works for our company, and she oversees two of our four buildings. So, she's managing them, having phone conversations with them, following up on any issues that they might have had with medications, follow-up visits, make sure that they're going to their doctor appointments. She'll call them after a discharge, and then I think she calls them weekly until they meet that program 30-day requirement (11_A Director of Nursing).

Staff members from this facility reported that they offer this service to patients at no additional cost and that they have seen a decrease in readmission rates since implementation. Similarly, staff members from two other LTC facilities said that they do follow-up calls with all of their skilled rehabilitation patients for 30 days to see how they are doing and to prevent rehospitalizations. In contrast, a few stand-alone SNF interviewees stated that they would like to implement such programs, but do not have the capacity with the high number of admissions and discharges from their SNF. Said one administrator:

So we'll probably also have to build in a call system where it's like 10 days out checking in on that patient, how are they doing, like 30 days out, 60 days out, 90 days out, just to make sure that we're capturing that full 100 days that we're being held accountable for. But have we done that yet? No. It's a lot of work. And we're doing close to 200 admissions and 200-plus discharges a month in this building. You can imagine the work that that would create, to try and keep tabs on everything. So it probably will be more reactionary than proactive (29_B Administrator).

SNFs can directly readmit patients to the SNF to avoid rehospitalizations and penalties. (4.c.v).

A few interviewees reported that they can directly readmit patients back to the SNF instead of having patients go back to the hospital to avoid penalties under SNF-VBP. This is because, under federal regulations, Medicare FFS beneficiaries can be readmitted without requiring another three-day qualifying hospital stay if they are still within 30 days of their SNF discharge. This contrasts with some MA plans, which require an additional pre-authorization should a SNF wish to readmit a patient to the facility. A few interviewees (from both LTC facilities and stand-alone SNFs) stated that in working closely with home health care agencies, they try to educate them on their ability to do a direct readmission back to their SNF if the patient is not doing well at home. As one director of social services from a stand-alone SNF described:

Our home health companies will update us on how [the patient is] doing, or if there's any risk [for rehospitalization]...We'll have times where they go out [discharge from the SNF] and we might do a direct re-admit. (28_B Director of Social Services).

In addition to working closely with home health care agencies, one director of nursing reported trying to educate patients and family members on their ability to do direct readmissions when patients are not faring well. However, as the director of nursing stated:

Sometimes it gets missed and the family panics, and they end up back in the ER. All you can do is educate. And it would be better if families were more involved, especially at the time of discharge to understand that piece. We work to educate, but

it's a time of stress. People don't always learn best [during] times of stress (23_A Director of Nursing).

A few SNFs have not made any changes in anticipation of upcoming penalties under SNF-VBP. (4.c.vi).

When asked if their SNF has made any changes in anticipation of the upcoming penalties under SNF-VBP, a few SNF staff members from both LTC facilities and stand-alone SNFs mentioned that their facility has not made any changes. A common response was that their SNF will just keep doing what they are doing and that they do not want to put too much emphasis on avoiding the penalties. As one Director of Rehabilitation explained:

I think that the facility and regional and corporate levels have probably taken a little bit more of a look at everything. I mean on our end, the day to day operations, the intent is to truly be doing the same thing that we've always been doing and not changing taking care of the patient. So it's something that is from the management side it's in the back of our mind, but it's not what we want to put at the forefront. We want to put at the forefront making sure that we're taking care of the patient, helping them to get back home or get to the assisted living where they were before, making sure that they're medically stable; at least that's what I feel like our goal is with it (6_D Director of Rehabilitation).

Echoing a similar sentiment, one business operations manager from a LTC facility described that their SNF will continue with normal care, but if they start to see that they are getting a lot of penalties, their corporate office will probably take a closer look at how those penalties can be avoided.

Summary

Most staff members were aware of the forthcoming penalties for the readmission of Medicare FFS beneficiaries 30 days post-SNF discharge. Some individuals found them to be fair in that they might hold SNFs accountable and produce better outcomes while also reducing Medicare fraud. The majority of interviewees, however, found the proposed penalties to be unfair because they felt that many rehospitalizations are out of their control. A few predicted that the penalties will increase burden on their SNFs and potentially lead to poorer quality patient care. Many interviewees felt that the penalties would likely not affect their particular SNF because of the quality care they provide. However, many predicted that the upcoming penalties would disproportionately impact poor-performing SNFs, some of which may close.

A few interviewees mentioned that their SNFs had not done anything different in preparation for the upcoming penalties. Others, however, described various measures their SNFs have taken. For example, some facilities had started to focus their quality improvement measures by tracking and seeking to reduce readmission rates. Many SNFs had started working with supervising physicians to improve communication and to ensure that patients are not sent back to the hospital without consulting SNF staff first. A few SNFs had started partnering with home health care agencies as preferred providers to help ensure quality of care once the patient leaves the SNF with the potential to reduce rehospitalizations. A few interviewees from LTC SNFs follow up with patients once discharged from the facility. In doing so, they are able to readmit the patient back to the SNF as opposed to the patient first going back to the hospital. By contrast, stand-alone SNFs are often unable to track patients as

closely due to their high volume of patients. Many interviewees remained optimistic that the penalties would not affect their SNFs, but expressed some uncertainty and a need to wait and see what would happen.

Theme 5 - Heart Failure

Each staff member was asked their opinions on the overall care of patients with heart failure in their SNF. Heart failure is one of the leading causes of potentially avoidable rehospitalizations and has potential to lead to penalties for SNFs under the SNF-VBP. Therefore, it was important to understand from interviewees what they saw as the greatest challenges in caring for patients with heart failure (5.a), as well as how their particular SNF cares for them (5.b). The transition of care from a hospital to a SNF can be a dangerous time for patients with heart failure. It is thus critical that all important documentation and information be transferred from one facility to the next during care transitions. Interviewees, however, reported challenges transmitting this information (5.c). Lastly, the majority of interviewees described that MA plans do not have an influence on the specific care of the patients with heart failure (5.d).

Challenges in caring for patients with heart failure. (5.a).

Nearly all staff members described patients with heart failure as being difficult to care for and at risk for rehospitalization. Said one director of nursing: “Who knows what the future holds 'cause it is a big thing, all these patients with heart failure and even COPD. That's why if they're not monitored correctly, they're the ones who are in and out of the hospitals a lot.” (14_A Director of Nursing). One of the greatest challenges for patients with heart failure is that most have multiple comorbidities as described by interviewees (5.a.i). If

not managed correctly, patients with heart failure can be medically unstable (5.a.ii) wherein they experience exacerbation quickly. Many interviewees felt that it is difficult to care for patients with heart failure who make poor health care decisions while receiving care (5.a.iii).

Patients with heart failure often have multiple comorbidities. (5.a.i).

Patients with heart failure can be difficult to care for because they often have multiple comorbidities, making it hard to manage all of the illnesses at once. Explained one community liaison: “Most people don't just have CHF. They also have diabetes and COPD and they're obese and there's like four other things going on with them, which just makes them high, high risk in acuity and they're just critical almost all the time.” (19_A Community Liaison). One corporate-level executive even went as far as saying that heart failure is a comorbidity among nearly everyone admitted to their facility.

Patients with heart failure are often medically unstable. (5.a.ii).

Nearly all SNF staff members described heart failure as a difficult illness to care for because many patients are medically unstable and “turn on a dime” (23_A Director of Nursing). SNFs need to be aware of the subtle signs of decline in heart failure patients that can be easily missed, including shortness of breath and edema. Sometimes patients will not be aware of or make mention of any changes in their conditions, so getting daily weights and monitoring them closely for any signs of exacerbation are key to the care of patients with heart failure. A community liaison described how patients with heart failure could rapidly experience exacerbations of their illness:

They literally just change overnight. People just blow up overnight with fluid and then, all of a sudden, they're on fluid overload and they have to be sent out and they're

short of breath. There's just so many other symptoms associated with heart failure (19_A Community Liaison).

Difficult to provide care to patients with heart failure when they make poor health care choices. (5.a.iii).

One of the most frustrating aspects of caring for patients with heart failure is having to let them make poor health care choices as that is their prerogative. SNFs must allow patients choice in their diets as well as how much they participate in therapy. Many interviewees expressed frustration in watching patients with heart failure choose to eat unhealthy diets or drink too many fluids all while knowing that it could easily exacerbate their heart failure and send them right back to the hospital. While they can offer no added salt or low-sodium diets to their patients, a few interviewees described that it is up to the patient whether or not they want to add salt, or eat salty foods. Reported one director of nursing:

We've had [patients with] CHF come in here, and you can't believe what they order. They got grits, and they want salt. And it's good food...There's other things on the menu that they could choose that's always available, like a fresh salad. That stuff is there. It's not just the Jimmy Dean, you know what I mean? But they don't make those choices. And that's frustrating. (24_B Director of Nursing).

Patients with heart failure may also choose to forgo physical therapy and exercise, choosing to lie in bed all day. An administrator expressed their frustration:

Diet, exercise, therapy, like getting them to go to therapy. You know, and they don't feel good, so keeping them motivated enough to be involved in their own care. I mean, just the disease process itself is a challenge. Just even keeping their legs

elevated. I mean, it's so important, and they don't often do it. Even here, "We're going to elevate your legs for 30 minutes," and they'll choose not to do that. (11_B Administrator)

All SNFs can do is try to educate patients with heart failure to make smart, informed decisions, but it is ultimately up to the patient. And, as two directors of nursing described, even when you educate patients with heart failure about how to manage their symptoms and what to do to avoid exacerbations, many still do not comply. Those are typically the patients that cycle in and out of the hospital: "Yeah, it's hard to stop the cycle especially when it's, you know, they're 90 years old. They're not going to change their diet" (28_A Director of Nursing).

A few interviewees also described other factors that make it difficult to care for heart failure. One administrator from a LTC facility explained how many of their patients that they care for have not seen a doctor in years. A few other interviewees stated that sometimes dementia plays a role in non-compliance of patients in tasks such as monitoring weight and taking medications. Sometimes patients lack support or transportation to make doctors' appointments and visit the pharmacy to refill medications. Said a director of admissions:

And especially our population when they're more towards the end stage of that diagnosis adding in with their age or maybe the lack of family support or whatever it may be, sometimes it can be very challenging to really make it successful for that patient at home. Especially if they're not willing to do things themselves, maybe change their diet or maybe look at a higher level of care instead of being home independently, those type of things (6_E Director of Admissions).

SNFs' care of patients with heart failure. (5.b).

Recognizing the acute nature of caring for patients with heart failure, some SNFs have put into place guidelines and specific interventions to prevent exacerbation and potential rehospitalizations (5.b.i). Some respondents also emphasized how their SNFs provide education to both their patients with heart failure as well as their front line staff about how to recognize signs and symptoms of heart failure exacerbation (5.b.ii). Lastly, a few interviewees also described how their facilities work with coordinating care with patients' cardiologists outside of the SNF to ensure proper care is provided to the patient based on their medical history and for a smooth transfer upon discharge from the SNF (5.b.iii).

Some SNFs have specific heart failure guidelines and interventions in place.**(5.b.i).**

Many SNF staff members described having specific guidelines and interventions in place to care for patients with heart failure. Two SNFs have worked with local physicians to implement heart failure-specific programs that incorporate best practices. While seemingly obvious, one of the most important measures was to identify the patient's heart failure diagnosis when they are first admitted to the SNF. After identifying patients with heart failure, most SNFs follow standard guidelines by monitoring blood pressure, making sure appropriate medications are in place, weighing patients daily, and offering no added salt diets. One director of nursing from a stand-alone SNF even described that they are "pretty aggressive. I mean, we'll give IV Lasix. We do daily weights. We notify the physician of greater than or less than three pounds in a day, five pounds in a week. We do weekly [basic metabolic panels] BMPs. We'll do a chest x-ray if indicated" (12_A Director of Nursing).

SNF staff also reported providing education to their patients with heart failure (5.b.i).

Coordination of care within their SNFs and with outside providers was also described by SNF staff as a key way to care for patients with heart failure (5.b.ii).

SNFs provide education to patients with heart failure and front-line staff.

(5.b.ii).

Interviewees also described training and educating patients and front-line staff as primary ways to provide better care to patients with heart failure. A few respondents—directors of nursing and administrators--mentioned that training staff on how to appropriately care for and identify signs and symptoms of patients with heart failure is imperative to preventing rehospitalizations. One LTC facility trains staff regardless of title, including dietary staff who work in the dining room. Said the director of nursing:

I think that's a huge piece, focusing on education, not just the nurses, but the CNAs [certified nursing assistants] and other staff. We recently did an in service on heart failure and talking to all staff, because the dietary staff sees them in the dining room. "If you're seeing this, and this is different, these are the things you want to look for."
(23_A Director of Nursing).

A few interviewees see education of patients with heart failure as key to helping prevent rehospitalizations. One director of nursing found that the SNF setting affords them a better opportunity to educate patients about heart failure compared to hospitals that typically have shorter lengths of stay. An administrator described that:

You have to help a patient to understand on whatever terms they can to recognize their own symptoms and how that disease manifests itself. "What were you feeling

like prior to your last hospitalization?" To catch those warning signs, that they're not thriving sooner, so that they're seeking out medical interventions, like at their primary care physicians, that they're able to adjust the medications and things to reflect what the patient actually does. And just giving them realistic tools that we hope will be sustainable after discharge. (29_B Administrator).

Coordination of care for patients with heart failure within and outside the SNF.

(5.b.iii).

In addition, a few reported working with physicians both in and out of their SNF to coordinate care for patients with heart failure. The patient's cardiologist serves as a primary sounding board for many SNFs caring for patients with heart failure. SNFs will contact the cardiologist to learn about patients' medical histories and medications. SNFs also work with patients to set up appointments with their cardiologists post SNF-discharge. One SNF reaches out to an external critical care doctor for second opinions if acute situations occur with a patient with heart failure in their SNF. Said the director of nursing:

We've also reached out to some hospitalists, ER doctors as well that we're like, "This is what has happened to our resident with CHF. They're in CHF exacerbation, they can't breathe, but they also have renal failure. There's not much we can do in the nursing home." His thought process is like, "Oh that's no big deal. Just do this. This isn't really a big deal. You don't really need all this stuff to take care of the resident. You just need to give them this one medication" or, "do this and then check labs" (9_B Director of Nursing).

Interviewees from a corporation that operates multiple LTC facilities felt that they are unique in that they have in-house providers that they can rely on to help ensure the best care possible for their patients. Said one administrator from this corporation:

So we have a MD and a PA that work only here, only for our campus [facility]. And so they only see patients here. They're the ones on call for their patients. They round with us. I would say the physician presence is the biggest difference. Actually having a physician to lay eyes all the time (24_A Administrator).

Transition of care from the hospital to SNF can result in poor outcomes for patients with heart failure. (5.c).

The transition of care from the hospital to the SNF can lead to gaps in information, which can result in poor outcomes for patients with heart failure. Two staff members stated that obtaining the ejection fraction from hospitals is one of the key pieces of information needed for the care of patients with heart failure. Said one, a director of nursing:

So it's [the ejection fraction] definitely, hopefully something that I have in their file. If it's not, then I do ask them [the hospital] for it because that's a big piece of determining how to treat them. Making sure they're on the right medication... what should we expect and how to treat them and how to get them to the goal where they need to be to safely discharge home (14_A Director of Nursing).

A few interviewees reported that oftentimes they do not get necessary information to provide quality care for their patients with heart failure from the hospitals. Said a director of nursing: “Do we always get it [information]? It’s a challenge. It amazes me, that process. What the hospital will discharge a patient [with]...it’s like Fort Knox to get it” (12_A Director of

Nursing). Typically, SNFs will receive at least the discharge summary for patients. If not, SNFs often call the hospital case managers to obtain that information or use the statewide health information exchange, Colorado Regional Health Information Organization (CORHIO), to look up the information themselves.

MA plans do not seek to influence how their members with heart failure are cared for (5.d).

The majority of interviewees stated that they do not see MA plans as having an influence on the specific care of patients with heart failure. Most interviewees described that their patients with heart failure are cared for the same regardless of their insurance type.

Stated an administrator:

When I worked on the floor, I had no idea what a payer source was. I knew somebody was paying for it, but I would never have known. Not in a hospital. Not here. Not anywhere. I've never had Cigna tell me, "Hey, we have a heart failure program we'd like to have Patient A on." (24_A Administrator).

One administrator, however, expressed that if they are referred a patient with heart failure who has MA coverage, then they are most likely to deny admitting them due to the high cost of care with the relatively low rate of reimbursement. Stated the administrator when asked if MA plans have an influence on how they provide care to patients with heart failure:

I mean in the sense that I don't take them. We're only going to provide care to those patients that we can afford to provide care for. So I mean it's a pretty damning statement, but I think it's accurate. We are a for-profit facility and we are required to

meet all of our financial goals for the year and if patients are too expensive to care for then we will deny them (9_A Administrator).

Summary

Patients with heart failure are at risk for frequent and potentially unnecessary rehospitalizations. This section focused on the care of heart failure patients in SNFs and the challenges that come with caring for such patients. Many interviewees expressed frustration with the non-compliance of patients with heart failure and the difficulties in caring for their multiple comorbidities and overall medical instability. SNFs have put into place measures to help care for patients with heart failure including consistently monitoring them for signs and symptoms, and educating patients and training staff on how to manage heart failure. A few SNFs also coordinate care with physicians and other providers inside and outside of the SNF to ensure smooth transitions. Lastly, the transition of care from the hospital to the SNF has the potential for poor transmission of information thus potentially leading to poor health outcomes for patients. SNFs make coordinating with case managers at hospitals a priority and use the state's health information exchange system as resources to ensure that valuable information is obtained. Most MA plans do not try to influence the particular care of their members with heart failure. However, some SNFs will deny admitting a patient with heart failure and MA coverage due to the high cost of providing care to them relative to their low reimbursement.

Conclusion

This chapter reported the results from 23 interviews with key staff members from 11 SNFs in the Denver metropolitan area. Five themes emerged from analysis of the

interviewees: the SNF marketplace (Theme 1), MA plans relationships with SNFs (Theme 2), SNFs' preferences for FFS beneficiaries over MA members (Theme 3), SNF-VBP penalties for rehospitalization 30 days post hospital discharge under PAMA (Theme 4) and the care of heart failure patients in SNFs (Theme 5).

The Denver-metropolitan SNF marketplace was described by nearly all interviewees as very competitive. The oversaturation of the market is in part due to Colorado lacking a CON law and SNF supply being ahead of the demand. Nearly all new SNFs built in Denver are stand-alone SNFs that primarily provide care to patients under the Medicare skilled rehabilitation benefit. Those stand-alone SNFs are in direct competition with one another and also with LTC facilities that provide care to both LTC and skilled rehabilitation patients. Many staff members from the LTC facilities stated they have difficulty attracting patients to their typically older facilities because many patients are attracted to the newer stand-alone SNFs. Some of these interviewees pointed out that just because a patient receives care in a newer stand-alone SNF does not mean that they are receiving better care.

Interviewees, regardless of role and SNF type, reported seeing the need for rehabilitation in SNF settings decrease as hospitals increasingly discharge patients directly to the home, supported by home health care. With more patients sent home with home health care, SNFs are left to care for the remaining patients who are typically sicker and more acute. Changes observed by interviewees in the SNF marketplace include an increase in the number of MA members, shorter lengths of stay in both the hospital and SNF setting, and an increase in staffing shortages.

SNFs face stiff competition attracting patients. The majority of SNFs thus use clinical liaisons to serve as marketers for their buildings and to help determine the goodness of fit of potential patients for their facilities. Other SNFs work to become preferred providers with hospitals, bundled payment plans, and Accountable Care Organizations. A few LTC facilities have created niches or specializations in caring for higher acuity patients in an effort to compete with some of the newer stand-alone SNFs. Ultimately, the decision where to receive post-acute care and skilled rehabilitation is up to the patient. SNF staff members described frustrations with many patients and family members relying on the Internet (primarily Google) to make these decisions as opposed to using CMS' Nursing Home Compare star rating system. Families typically tour facilities on behalf of patients, often basing decisions on the physical appearance of a facility rather than the quality of care provided. Interviewees identified location as a primary reason patients or family select particular facilities. They also reported that patients and family members often hear about and choose facilities based on word of mouth or reputation.

One of the primary purposes of the qualitative interviews was to gain a better understanding of the relationships between MA plans and SNFs. Interviewees were asked to describe the process of obtaining a MA contract. Most indicated that the purpose of having MA plan contracts is to supplement business derived from FFS Medicare, such as helping to maintain referrals during seasonal dips. Contracts are typically executed at the corporate or administrative level wherein the MA plan or SNF initiates the conversation and process. Ultimately, the decision whether or not to form a contract is based on the need for said contract to help SNFs maintain the flow of referrals or to help fill a gap in coverage for the

MA plan. Especially stand-alone SNFs described Kaiser Permanente as a fruitful contract to have because Kaiser Permanente is good at helping SNFs maintain their censuses. However, Kaiser Permanente was also described as being difficult to work with because of stringent contracting and oversight requirements for participating facilities.

MA plans in general use various mechanisms to influence and control the care provided to members by SNFs with the goal of saving money. Most interviewees mentioned case management as the primary mechanism used by MA plans and expressed frustration with the way the process typically unfolds. Staff members felt that communication both within the SNF team and with MA case managers was key to overcoming impediments in this regard. They felt that good communication could also help to ensure better quality of care and outcomes for patients. In addition to case management, many MA plans require pre-authorization prior to patients being admitted to a SNF facility. Most MA plans do not require SNFs to work with select contractors for services such as bloodwork or imaging with the exception of Kaiser Permanente.

The length of SNF stay was described by many interviewees as being a key mechanism of control by MA plans. MA plans typically want a shorter length of SNF stay so they can transfer their members to a lower-cost setting as quickly as possible, which is typically home with home health care. Some interviewees mentioned that MA plans use algorithms to determine the length of SNF stay. Once a length of SNF stay is determined, the MA plan will set a discharge date; SNFs often do not have a say in that final decision. SNFs can tell their patients to try to appeal their discharge if they think it is too early, but appeals are rarely won. The emphasis by MA plans on getting patients in and out of a SNF setting is

primarily based on cost-considerations and has the potential to lead to poor patient outcomes including rehospitalizations, as described by a few interviewees. Most staff members stated that their SNFs are not financially incentivized by MA plans. One individual, however, felt that some MA plans provide monetary incentives to their case managers to promote shorter lengths of SNF stay and earlier discharges.

Nearly all staff members, regardless of role and SNF type, reported a preference to admit FFS beneficiaries compared to MA members. The primary reason for this preference is that SNFs are reimbursed more by FFS Medicare compared to MA plans. MA plans reimburse SNFs on a capitated rate, which is lower than the daily rate for FFS beneficiaries. SNFs must absorb any costs above that MA capitated rate, making it difficult sometimes to provide adequate care for MA members. FFS beneficiaries are also easier to admit into a SNF with the only requirement being that they had a three-midnight hospital admission compared to MA members who require pre-authorization by the MA prior to admission. SNFs also have more autonomy over the care provided to FFS beneficiaries.

All interviews were conducted prior to the implementation of the SNF-VBP penalties that began in October 2018. Interviewees were asked about this provision and if their SNF had made any changes to avoid penalties for rehospitalization under its auspices. A few interviewees felt imposing penalties under the SNF-VBP were fair in that they would hold SNFs more accountable for the care they provide, lead to better clinical outcomes for patients, and reduce Medicare fraud. However, most staff members (regardless of role and SNF type) felt that the penalties under the new law were unfair. A few believed that the penalties had the potential to decrease quality of care because of an increase in the burden of

paperwork and documentation. Most respondents who felt that the penalties were unfair expressed frustration, arguing that many rehospitalizations are unavoidable. A few mentioned that they often see patients discharged from hospitals too quickly and that they can tell as soon as they are admitted that they will most likely need to go right back to the hospital. It was also pointed out that the higher acuity of patients that SNFs are seeing will make it even more difficult for them to prevent rehospitalizations. Primarily stand-alone SNFs also described their frustration with being subject to patient's bill of rights under the 1987 Nursing Home Reform Law where they must offer patients dietary and therapy choices, which may compromise SNFs' ability to prevent hospital readmissions. Staff members from stand-alone SNFs felt that they should not be held accountable for patients making unhealthy choices, particularly after they have been discharged home. Lastly, one individual described their frustration with being penalized for rehospitalizations once a patient has been discharged and is under the care of another provider, typically a home health care agency.

Interviewees were asked to report any changes made in anticipation of the upcoming penalties under SNF-VBP. SNFs are required to track readmission rates; a few SNFs have used that as an opportunity to implement quality improvement programs in this area. Interviewees describe reviewing rehospitalizations as a team to determine what could have been done better and to be more proactive in preventing unnecessary readmissions in the future. Other interviewees highlighted the importance of improving communication with supervisory physicians and other providers so that patients are not sent back to the hospital without a discussion with the broader care team to determine if the patient can receive treatment in-house rather than being readmitted to the hospital.

To improve the quality of care after discharge and reduce the risk of rehospitalization, a few SNFs have identified preferred home health care agencies that they recommend to patients for post-acute care and rehabilitation once home. In addition, some SNFs (primarily LTC facilities) track their patients once they leave their care to ensure that they are still doing well at home. Staff from stand-alone SNFs also indicated a desire to track patients post-SNF discharge, but reported that the sheer number of patients that they admit and discharge on a daily basis would make it nearly impossible to do so. Staff from some SNFs reported working to readmit patients directly from their home back to the SNF to avoid unnecessary rehospitalizations. The majority of SNFs seemed to be working towards making adaptations to prevent avoidable rehospitalizations and associated penalties. The few SNFs that had yet to make changes planned to do so as needed.

Heart failure care in SNFs was the last topic discussed with staff members from participating SNFs in the Denver-metropolitan area. Heart failure is one of the leading causes of potentially avoidable rehospitalizations and is a difficult illness to care for. Interviewees were first asked what they see as the biggest challenges in caring for patients with heart failure. Interviewees, regardless of role and SNF type, felt that heart failure patients typically have multiple comorbidities and are typically medically unstable. As described earlier, SNF staff members expressed frustration with watching patients make poor health decisions. Patients with heart failure are educated on making healthy choices such as eating a low-sodium diet and exercising, but still make poor health decisions, leading to exacerbation and rehospitalization.

Staff members were asked to describe the care their SNFs provide to patients with heart failure. It was reported that SNFs first identify patients as having the diagnosis of heart failure and then ensure that their staff monitors their blood pressure, weights, medications, and diet. Two SNFs, one stand-alone and one LTC facility, have specific heart failure programs in place directed by outside cardiologists based on best practices. Many interviewees highlighted the importance of education, both to the patient and to their front-line staff. Coordinating care both in-house and in the community is necessary to provide quality care to patients with heart failure. A few SNFs work closely with patients' community cardiologists to ensure that they are kept in the loop and also to help ensure that they have appointments set up with their cardiologists post-SNF discharge. Having access to physicians both in and outside of the SNF is also helpful for SNFs in acute situations for patients with heart failure.

Interviewees pointed to the need to ensure smooth transitions of care for patients with heart failure (and patients in general) from the hospital to the SNF. The transmission of important information, such as the ejection fraction, is necessary to provide adequate care for patients with heart failure. SNFs develop working relationships with case managers at the hospitals to request more information if needed. If unable to obtain full hospital records or other pertinent information, a number of SNFs use Colorado's health information exchange, CORHIO, to access it electronically. Lastly, when asked whether or not MA plans influence the specific care of their HF members, most respondents stated that MA plans do not. The majority of interviewees mentioned that when they provide care to their patients on the front-

line, the insurance type of the patient does not matter to them and that they do not have any specific guidelines set by the MA plans for the care of their members with heart failure.

The next chapter includes a discussion of both the quantitative and the qualitative results. The discussion section will provide the reader with an overview of the main findings from both the quantitative and the qualitative chapters. A consolidated overview of the results will be provided along with a discussion of how the now implemented SNF-VBP penalties are affecting SNFs.

CHAPTER 7

DISCUSSION

This chapter discusses the study's quantitative and qualitative findings, providing an overview of where these aspects of the study align or differ from one another. The findings are also discussed in the context of the previous literature and hypotheses related to the risk of rehospitalization from skilled nursing facilities (SNFs) for patients with heart failure and the differences in care and oversight between patients covered by conventional fee-for-service (FFS) Medicare and Medicare Advantage (MA). Overall, this study did not find a significant difference between the 30-day risk for rehospitalization from a SNF between FFS beneficiaries and MA members. However, while not significant, all of the quantitative results pointed to FFS beneficiaries being at a greater risk for readmission than their counterparts in MA. The results also were in line with previous literature pointing to the mechanisms used by MA plans to provide oversight over their members while in SNFs. In sum, the findings from this study indicate factors identified for risk for rehospitalization while also contributing to the literature by providing important perspectives of SNF stakeholders on the influence of insurance type in the care of the patients they serve.

This chapter is structured as follows: the first section provides the major findings from both the quantitative and qualitative methods used in this research. The second section

evaluates the hypotheses from Chapter 3 used in this research in light of the main findings as well as placing them in the context of previous literature. The third section discusses the conceptual framework from Chapter 3 as it relates to the findings of this research. The next section describes the strengths and limitations of this research and the final section provides a conclusion.

Summary of Findings

This study used a mixed methods research design to examine the risk for rehospitalization 30-days post hospital discharge to a SNF by insurance type (FFS vs. MA) for patients with heart failure in SNF. Patients with heart failure in SNFs have high rates of rehospitalizations, but many could be avoided if SNFs adequately monitor heart failure signs and symptoms (e.g. looking for edema as a sign of fluid overload) (Allen et al., 2011; Azad et al., 2014; Desai et al., 2012; Jencks et al., 2009; Kim et al., 2013). In an effort to hold SNFs accountable for the care of their patients, the Centers for Medicare and Medicaid Services (CMS) recently implemented the Protecting Access to Medicare Act (PAMA) of 2014 SNF-Value-Based Purchasing (SNF-VBP) program (P.L. 113-93). Beginning in October 2018, all SNFs received value-based incentive payments related to their all-cause rehospitalization rates within 30 days of admission to their SNF (similar to that of the Hospital Readmission Reduction Program (HRRP) penalties for hospitals). The goal of the penalties is to hold SNFs financially responsible for rehospitalizations and incentivize them to prevent potentially inappropriate readmissions, thus lowering total costs to CMS and improving overall quality of care (Smith et al., 2015). Since implementation of the penalties, approximately 75% of the nearly 15,000 SNFs nationwide were penalized for their rates of

rehospitalization within 30 days of SNF admission (Rau, 2018). The majority of SNFs who received penalties were for-profit compared to non-profit and government-owned facilities (Rau, 2018).

The quantitative portion of this research used secondary data from 333 patients with heart failure in 29 SNFs in the Denver metropolitan area. This research used descriptive statistics, bivariate and multivariate analyses with three research questions in mind. Each multivariate model was run twice, using different versions of the Nursing Home Compare (NHC) five-star rating measure: a model using the single overall star rating, and a model using separate indicators for the health inspection, staffing, and quality of care resident care ratings. The first research question sought to identify if there were differences in the personal characteristics of SNF patients with heart failure with FFS versus MA coverage controlling for SNF-level factors. The main results showed that there were no significant demographic differences between patients regardless of insurance type. There was a significant difference in the care trajectories by insurance type, with MA members more likely to go home within the 30-day window compared to FFS beneficiaries. In the General Estimating Equations (GEE) overall NHC star rating model, FFS beneficiaries were more likely than MA members to receive care from SNFs with more Medicare-Medicaid certified beds, lower acuity, and a higher percent of Medicare beneficiaries served. In the three star NHC rating model (including separate measures for the health inspection, staffing, and quality of resident care ratings), the number of Medicare beneficiaries served was the only significant predictor. While all of these variables were statistically significant, the effect sizes were calculated for each variable to determine how substantial the findings were. Both the number of Medicare-

Medicaid certified beds and the patient case mix acuity variables had relatively small effect sizes ($d = -0.17$; $d = -0.40$, respectively). The percentage of Medicare beneficiaries served had a large effect size ($d = 0.86$). FFS beneficiaries received care from SNFs with 23.87 percent more Medicare beneficiaries served compared to SNFs that MA members received their care from.

The second research question focused on examining if there were differences in the rates of rehospitalization 30-days post hospital discharge to a SNF for patients with FFS versus MA coverage without controlling for any individual- or facility-level factors. The third research question used two multivariate models (GEE and Propensity Score Analyses) to match individual-level and facility-level factors to determine if there was a difference in the risk for 30-day rehospitalization between FFS versus MA patients. Insurance type was not a significant predictor or risk for 30-day rehospitalization in any of the models for research questions 2 or 3. While not significant, all of the multivariate models indicated that MA members had lower risk for readmission compared to FFS beneficiaries. In addition, there was a large effect size associated between insurance type and risk for rehospitalization. Among patients rehospitalized, 62% of participants had FFS coverage compared to 32% who were enrolled in a MA plan ($d = 3.7$). Moreover, the multivariate analyses indicated that patients who had longer length of SNF stay were less likely to be rehospitalized, whereas patients who had two or more hospitalizations in the previous 12 months prior to their SNF admission (excluding their qualifying hospitalization) were more likely to be rehospitalized. The risk of 30-day rehospitalization, in particular, decreased with each added day in the length of SNF stay in both the overall and three star rating models; the risk of 30-day

rehospitalization increased with two more prior hospitalizations in the three star rating model only. Descriptively, FFS beneficiaries had slightly longer lengths of SNF stay compared to MA members. The length of SNF stay had a large effect size ($d=0.76$) wherein patients who were rehospitalized within 30 days post-hospital discharge to a SNF had an average of 7.67 fewer days in the SNF compared to patients who were not rehospitalized. Similarly, the number of rehospitalizations had a large effect size ($d=13.31$) where the majority (55%) of patients who were rehospitalized had two or more hospital admissions in the previous 12 months, 18 percent had one admission, and 27 percent had zero hospital admissions.

In addition to individual-level attributes, the relationship between 30-day rehospitalization and several SNF-level factors were examined. Both the overall and three-star rating models indicated that the risk for rehospitalization decreased with each additional MA plan that a SNF contracted with, however, it had a small effect size ($d=0.39$). The average overall star rating was not significant in the overall star rating model. By contrast, the three-star rating model revealed positive and negative associations, respectively, between 30-day rehospitalization risk and higher average quality of resident care and health inspection star ratings (both of which had small effect sizes: -0.37 , -0.14 , respectively).

The qualitative analysis focused primarily on how the type of Medicare coverage – FFS versus MA – of patients with heart failure in SNF influences their SNF care and in particular, their risk for rehospitalization. Twenty-three key informant interviews with staff members from 11 SNFs in the Denver metropolitan area were conducted to inform this research. One of the primary themes that emerged from the interviews were the various mechanisms used by MA plans to influence the care of their members. SNFs felt that some of

the cost-saving methods imposed by MA plans were cumbersome and potentially dangerous. Case management was cited as one of the primary methods of control used by MA plans in coordinating care of their members in SNF. For MA members, length of SNF stay was often described as being pre-determined based on the patient's admitting diagnosis. MA plans want to have the shortest length of stay possible for their members to move them to a lower-cost setting (typically home with home health). In some cases, SNF interviewees felt that the aggressive nature of the shorter lengths of stay for MA members put those members at risk for rehospitalization.

Consistent with the findings in Aim 3's quantitative analysis, length of SNF stay proved a significant factor for risk for rehospitalization where the shorter the stay in a SNF, the greater the risk for readmission. Interviewees felt that MA members may be at a greater risk for rehospitalization given their shorter lengths of SNF stay; however, the quantitative results did not support this and even indicated the opposite effect. Even with the perception of MA members' increased risk for rehospitalization, SNF interviewees stated that they treat all of their patients, regardless of insurance type, about the same. Nurses and staff on the front lines do not typically know the insurance type a person carries and thus, according to interviewees, it does not influence the care provided. However, some interviewees indicated that some MA members may receive fewer therapy hours because the SNF is only reimbursed on a capitated basis; therefore, SNFs are incentivized to limit the resources provided to those members. A few interviewees also indicated that the type of insurance an individual has is more relevant at the administrative or executive level where the cost of caring for patients by insurance type (FFS vs. MA) becomes a factor. In general, most

interviewees cited a general increase in the acuity of patients needing care in a SNF setting, regardless of insurance type.

Hypotheses

For this research, three hypotheses were proposed based on the conceptual framework derived from the literature. The conceptual framework incorporated Resource Dependence Theory and Principal-Agent Theory to describe the potential influence of Medicare insurance type – FFS vs. MA – on the risk for rehospitalization from a SNF. The conceptual framework identified four major actors in the SNF environment – CMS, MA plans, SNFs, and patients -- and was used to describe their relationships. Resource Dependence Theory focuses on the asymmetry of power over needed resources and Principal-Agent Theory focuses on the asymmetry of information. The following section discusses each of the hypotheses and whether or not the quantitative and/or qualitative results support them.

Hypothesis #1: In light of potential favorable selection, FFS beneficiaries will be in poorer health and use more health services, on average, than MA enrollees, all else being equal.

In general, this research found few statistically significant differences in the health and utilization of health services between FFS beneficiaries and MA members. This contrasts with previous literature that pointed to MA members being in better health than FFS beneficiaries due to favorable selection on the part of MA plans (Elliott et al., 2011; Goldberg et al., 2017; Hellinger et al., 2000; Landon et al., 2012a; MedPAC, 2012; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Newhouse et al., 2012; Rahman et al., 2015; Riley, 2012). This finding may be in part because of the homogeneity of the

participants recruited for this research (to be discussed further in the quantitative limitations section). However, in the bivariate analyses for research question 1, there was a statistical difference between the insurance type and the care trajectory of those who transferred from the hospital to SNF to home within 30 days (without having a rehospitalization). This variable, however, was no longer significant in the GEE analysis for research question 1. Nearly three-quarters of patients who successfully discharged home from the SNF within 30 days were MA members, compared to only half of the FFS beneficiaries. This finding indicates that MA members were more likely to successfully transfer back to a community setting within 30 days of their SNF admission (and stay there without being rehospitalized during that time) compared to FFS beneficiaries. This finding is similar to that of Kumar and colleagues (2018), who found that MA members were more likely to discharge back home from a SNF compared to FFS beneficiaries.

In the qualitative interviews, SNF staff indicated that MA plans aim to transition their members home with home health as quickly as possible from the SNF because it is a lower-cost setting. These quick discharges typical of MA plans seemed to be a cost-saving measure, rather than an indication that MA patients are healthier than FFS patients. The strategy identified in this study is consistent with literature examining MA mechanisms of control, which has found that MA plans typically incentivize SNFs and providers to provide care in the most appropriate and cost-effective setting, often limiting the length of SNF stay (Blumenthal et al., 2015; Gadbois et al., 2018; Glied, 1999; Gary & Field, 1989; Spector, 2004). This follows from MA plans being incentivized by CMS through capitated reimbursement, which incentivizes them to keep costs down by directing their members to

receive care in the lowest-cost setting possible (Center for Medicare Advocacy, n.d.; Goodson et al., 2001; Huckfeldt et al., 2017; Meyers et al., 2018). SNF staff interviewees stated a preference for patients with FFS coverage because they feel they have more autonomy over the care for those patients and are thus better able to ensure a safe discharge.

Overall, the main differences between FFS beneficiaries and MA members found in the quantitative analyses were in the types of SNFs they used. In general, FFS beneficiaries were more likely to receive care from SNFs with more Medicare/Medicaid-certified beds (overall star rating model), a greater percentage of Medicare beneficiaries served (both overall and three-star rating models), and lower patient acuity case mix (overall star rating model). As described by SNF interviewees, stand-alone SNFs depend nearly entirely on Medicare-certified SNF beds compared to long-term care (LTC) facilities, which devote only a select number of their beds to skilled rehabilitation patients, with the remainder of patients receiving LTC paid for by Medicaid or privately.

SNFs that provide LTC as well as skilled rehabilitation described having trouble competing with stand-alone SNFs because acute patients in need of skilled nursing and rehabilitation do not want to receive their care alongside LTC patients in a “nursing home”. Stand-alone SNFs in the Denver metropolitan area are also generally newer, offer private rooms and bathrooms, and focus on hospitality whereas many of the LTC facilities are older with fewer amenities. To remain competitive in the oversaturated SNF marketplace, especially against the stand-alone SNFs, LTC facilities pointed to creating niches and specializations within the market. For a few of the LTC facilities, this meant that they need to market themselves as being able to treat and care for higher acuity patients and therefore

potentially have a high patient case mix acuity. With FFS beneficiaries able to select any SNF they want to (pending room availability), they are more likely to select to receive care from a stand-alone SNF that, as described, most likely has more Medicare-Medicaid certified beds, serves a greater proportion of Medicare beneficiaries, and has a less acute patient case mix.

To the best of my knowledge, previous literature has not described an association between the number of Medicare-Medicaid certified beds, percentage of Medicare beneficiaries served, or patient-acuity case mix by insurance type. In general, previous research has primarily found that MA members receive care from SNFs with lower overall star ratings and higher rehospitalization rates compared to FFS beneficiaries (Meyers et al., 2018). This may be in part because FFS beneficiaries have more choice in their SNF selection and therefore choose to go to SNFs with higher star ratings and better outcomes, whereas MA members are limited by their insurance companies' network for choice of SNF. With MA plans seeking to save as much money as they can out of the fixed, capitated reimbursement rates from CMS, they are more likely to contract with lower quality SNFs that are willing to accept MA plans' lower reimbursement rates compared to FFS reimbursement rates. However, quality of care, as measured by star rating, did not prove to be significantly associated with insurance type in the present study. This research's lack of concordance with previous literature may be explained by the limited variation among the SNFs' star ratings in this small sample of 29 Denver metropolitan SNFs. Meyers and colleagues (2018) used a national database (the Medicare Beneficiary Enrollment Summary File), which provided them with a sample of all Medicare beneficiaries between 2012-2014

and all of the SNFs who provided care nationwide to those 4 million plus individuals during those years. Therefore, the homogenous, small Denver SNF sample perhaps lacked sufficient variation in the star rating system by insurance type. In addition, data related to the rehospitalization rates of the SNFs was not included in this current research as it was not available for the years of the SNF Connect trial, 2014-2017. CMS announced that as of July 2016, they would add rehospitalization rates of acute-care SNF patients from Medicare claims data into their calculations for the quality of resident care star rating (CMS, 2016i). However, the rehospitalization rates for each SNF were not made publicly available on the Nursing Home Compare website (under quality of resident care star rating) until recent legislation under the SNF-Quality Reporting Program (SNF-QRP) in October 2018.

Hypothesis #2: Rehospitalization rates from SNFs will be lower among Medicare beneficiaries enrolled in MA than those enrolled in FFS Medicare.

AND

Hypothesis #3: MA plan enrollees will have a lower likelihood of rehospitalization from SNF than Medicare FFS beneficiaries, after controlling for patient and SNF characteristics.

Overall, the findings from research questions 2 and 3 did not find significant differences in the rates of rehospitalization between FFS beneficiaries and MA members. This finding is consistent with some previous literature that found no significant difference in rehospitalization between the two groups (Oh, 2017; Raetzman et al., 2015; Smith et al., 2005). However, most previous research points to MA members having lower risk for rehospitalizations. Still, while not significant, the results from research questions 2 and 3 did

show a consistent pattern of lower rehospitalization risk among MA members, similar to the majority of findings from previous research (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). The small sample size used in this research is likely to be the cause of not finding significant differences in the rates of rehospitalization between FFS beneficiaries and MA members ($p=0.251$ in the overall star rating model; $p=0.141$ in the health inspection, staffing and quality of resident care model). This theory was tested using a sensitivity analysis to discern if a larger sample size might change the significance of the results between insurance type and risk for rehospitalization (more information provided in the limitations section of this chapter). With a larger sample size, it appears that MA members were at significantly less risk for a rehospitalization compared to FFS beneficiaries in the three star rating model (not in the overall star rating model).

The quantitative results differed from the results of the qualitative interviews with respect to the role of insurance type. Most key SNF staff members interviewed felt that MA members would be at greater risk for rehospitalization compared to FFS beneficiaries. MA plans use mechanisms of control to influence their members' care and most interviewees pointed to MA plans requiring their members to have the shortest length of SNF stay possible. The short lengths of SNF stay for MA members led many SNF interviewees to hypothesize that MA members were at a greater risk for rehospitalization compared to FFS beneficiaries.

When accounting for and matching patient- and SNF-level variables, the results indicated that other variables have a greater effect on a patient's risk for rehospitalization than the type of insurance a patient carries. Perhaps most notably, patients who have shorter lengths of SNF stays were more likely to have a rehospitalization within 30 days post-discharge from a hospital to a SNF. This finding is similar to previous literature by Burke and colleagues (2016) who found that patients who had shorter lengths of SNF stay were at a greater risk for rehospitalization compared to patients with longer SNF stays. The qualitative interviews pointed to this finding as well (as previously mentioned). Interviewees believed that patients who have shorter lengths of stay in a SNF would be at a greater risk for rehospitalization. However, they hypothesized that patients with MA coverage would have a greater risk for rehospitalization compared to FFS beneficiaries because they typically had a shorter length of stay, as found in previous literature (Angelelli et al., 2000; Kumar et al., 2018). In the sample used for the quantitative research, MA members did have a slightly shorter length of stay in the SNF compared to FFS beneficiaries, but it was not significantly different ($p=0.129$). Previous literature by Kumar and colleagues (2018) found similar results in that MA members did have shorter lengths of SNF stay compared to FFS beneficiaries (5.1 fewer days), but had a lower rate of rehospitalization (1.2 percentage points lower). This finding points to differences in the perceptions of SNF staff on the risk for rehospitalization versus what the quantitative data and previous literature points to (Kumar et al., 2018). While SNF staff may perceive MA mechanisms of control, in particular their short lengths of SNF stay, as a risk to the patient for rehospitalizations compared to FFS beneficiaries, MA

members seem to actually be at lower risk for readmission overall (though not significant in this research).

The quantitative results also indicated that patients who had two or more previous hospitalizations in the twelve months prior to their qualifying hospitalization and SNF admission were at greater risk for 30-day rehospitalization compared to patients with no previous hospitalizations. This finding is similar to Hummel and colleagues' (2014) findings in their examination of patients with heart failure risk for rehospitalization and previous admissions in the 12 months prior. Nearly half of the patients in their sample (48%) with two or more admissions in the previous 12 months were rehospitalized within 30 days of hospital discharge (Hummel et al., 2014). The data used for in the current research came entirely from patients with a diagnosis of heart failure, which is one of the leading causes of potentially avoidable rehospitalizations among Medicare patients (Allen et al., 2011; Azad & Lemay, 2014; Desai & Stevenson, 2012; Jencks, Williams, & Coleman, 2009). Patients with heart failure are described as being trapped in a "revolving door" wherein they are constantly in and out of the hospital (Mor et al., 2010). Therefore, it is not surprising that patients who are on a downward care trajectory where they are experiencing multiple hospitalizations within a 12 month period are more likely to be rehospitalized within 30 days of their SNF admission, compared to patients with heart failure who seem to better manage their symptoms (have had zero hospital admissions prior to their qualifying hospitalization prior to SNF admission). Most SNF staff described how difficult it is to care for patients with heart failure. Interviewees described how patients with heart failure typically have multiple comorbidities, are often medically unstable and can "turn on a dime", as described by one director of

nursing. There was also frustration among interviewees that patients with heart failure are often educated on how to manage their signs and symptoms related to heart failure (e.g. edema, shortness of breath), and yet make poor health care choices that increase their risk for exacerbation and potential rehospitalization including poor health care choices (e.g. not monitoring weight, noncompliance with medication directives) and/or poor lifestyle choices (e.g. high sodium diet, lack of exercise).

The quantitative results revealed several SNF-level variables that affected risk for rehospitalization within 30-days post-hospital discharge to a SNF. A key variable that was positively associated with risk for rehospitalization in both the overall and three star rating models was the number of MA plans that a SNF contracts with. For every additional MA plan that a SNF contracts with, the likelihood of being rehospitalized decreased. To the best of my knowledge, the number of contracted MA plans has never been reported as a significant predictor of risk for rehospitalization in previous research. As described, much of the literature points to the fact that MA members are at less of a risk for rehospitalization compared to FFS beneficiaries (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). The quantitative results for this research indicated that there were no significant patient-level differences between the two types of patients and therefore did not point to favorable selection on the part of MA plans. It is possible, however, that the mechanisms used by MA plans to influence the care of their members while in SNF may decrease their likelihood for rehospitalization. The intensive case management described by SNF interviewees pointed to the demands placed on SNFs to

provide care according to MA guidelines. It may be that the oversight provided by MA plans acts as another “set of eyes” on MA members’ care and therefore helps to decrease the patient’s risk for rehospitalization. Therefore, SNFs who have more MA plans and therefore more patient oversight may decrease their patients’ risk for rehospitalizations.

Looking separately at the three dimensions of star ratings provoked interesting findings, compared to the practice of using just the overall star rating as used in most previous research. For every increase in the average health inspection star rating in the three-star rating model, patients were less likely to experience a rehospitalization within 30 days post-hospital discharge to a SNF, corroborating other research that found a positive correlation between SNFs with higher health inspection and staffing star ratings and a decreased risk for rehospitalization (Kimball et al., 2018; Neuman et al., 2014). However, for every increase in the average quality of resident care star rating, patients were more likely to experience a rehospitalization within 30 days post-hospital discharge to a SNF, an association that has not been examined in other research, to the best of my knowledge. However, previous literature found that higher overall star ratings were associated with lower rates of rehospitalizations compared to SNFs with lower overall star ratings (Kimball et al., 2018; Ogunneye et al., 2015; Pandolfi et al., 2017; Unroe et al., 2012), an association that was not significant in this study.

The opposite effects of the two star ratings (health inspection versus quality of resident care) necessitates further investigation and explanation. Previous literature has raised issues regarding the Nursing Home Compare star rating system, including skepticism about the reliability and validity of the data (e.g. underreporting resident reports of depression and

pain); concerns for low interrater variability on the part of inspectors and SNF staff (e.g. differences in ratings/scoring between individuals); and, concerns for detection bias (e.g. some SNF staff members may have better ability to assess pressure ulcers and therefore rate them more critically (giving a lower quality rating) compared to SNF staff who are less experienced at assessing pressure ulcers and therefore rate their pressure ulcer data as better), (Castle & Engberg, 2005; Castle & Ferguson, 2010; Mor , Angelelli, Gifford, Morris, & Moore, 2003; Rahman & Applebaum, 2009; Sangl, Saliba, Gifford, & Hittle, 2005; Schnelle, 2007). CMS has recently aimed to address these concerns by changing the data used to generate some of the star rating measures. For example, the staffing star rating was previously based on self-reported data from SNFs but is now based on electronic data from the Payroll-Based Journal (PJB) system as of 2018 (CMS, 2019c).

The health inspection star rating comprises the three most recent annual state health inspections and any investigations from complaints (CMS, 2019b). The health inspection star rating comes from a third party (state reviewers) who visits the SNF and does a thorough inspection of the facility rather than relying on SNF self-report (Boccuti et al., 2015). In contrast, the quality of resident care rating comes directly from self-reported data provided by the SNF based on resident assessments (via the Minimum Data Set (MDS) and Medicare claims data). Prior to July 2016, data reported for the quality of resident care star rating was provided solely by SNF self-report using the MDS (Boccuti et al., 2015; CMS, 2016i). In July 2016, CMS implemented six new measures to include in the calculation of SNFs' quality of resident care star rating, which come directly from Medicare claims data and include the percentage of short stay residents who were rehospitalized after SNF admission

(CMS, 2016i). Therefore, it is possible that the self-reported SNF data used in 2015 through July 2016 to calculate the quality of resident care star rating may have affected the inverse relationship between risk for rehospitalization identified.

Multitasking Theory may help explain the inverse finding of quality of resident care star rating and the increased risk for rehospitalizations. Multitasking Theory was developed by Holmstrom and Milgrom (1991) as an extension of the Principal-Agent Theory (Jensen & Meckling, 1976; Mitnick, 2006; Ross, 1973). The Theory describes that when a principal imposes metrics on an agent as a way to influence their behavior, they may incentivize the agent to “teach to the test” to meet those metrics, but in turn other non-measured metrics may be disregarded by the agent (Holmstrom et al., 1991; Lu, 2012; Ryskina, Konetzka, & Werner, 2018; Werner, Konetzka, & Kruse, 2009). In this scenario, CMS acts as the principal and SNFs as the agent: CMS can never truly know how well SNFs are taking care of Medicare/Medicaid beneficiaries, so it uses the Nursing Home Compare star rating system to measure and publicly display quality of resident care (and overall, health inspection and staffing star ratings) results and incentivize SNFs to perform well. If a SNF has lower star ratings, a patient may be less likely to choose to receive care from that facility. Without referrals, SNFs may struggle to attract patients in the highly competitive SNF marketplace. As described by the qualitative interviews, patients/family members are encouraged and often do use the Nursing Home Compare website to select a SNF based on their star ratings. Similarly, hospitals were described by interviewees as choosing to refer their patients to and from preferred provider relationships with SNFs that have higher star ratings. Lastly, interviewees described how MA plans often use the Nursing Home Compare star ratings

among other measures (e.g. private room availability, rehospitalization rates, length of SNF stay) as a way to determine if they will contract with that SNF or not. Therefore, a SNFs' star rating is important to remain competitive in the saturated Denver market.

To ensure that SNFs can attract patients, under the Multitasking Theory, SNFs may strive to improve the metrics used in the quality of resident care star rating to improve their overall score. The quality of resident care star rating comprises 15 physical and clinical measures for nursing home residents (both SNF patients and LTC residents) (e.g. percent of residents who have received the flu shot vaccination, are in pain, with a urinary tract infection) (CMS, 2019b; Medicare.gov, n.d.c.). The health inspection star rating comes from the three most recent annual state health inspections by third party, objective state surveyors who arrive at the facility unannounced or from any investigations related to complaints. During the survey, inspectors observe the happenings in the facility, review medical records, and interview patients/residents, family members, and SNF staff (Colorado Department of Public Health and Environment, 2019). Unlike the health inspection star rating, which is out of a SNF's hands, data for the quality of resident care data come directly from SNFs' MDS reports and Medicare claims data thus allowing SNFs to have more control over their rating. Therefore, SNFs are incentivized to focus on improving those specific metrics that make a difference to their quality of resident care star rating. In the meantime, Multitasking Theory describes that unreported metrics that are neither rewarded or penalized may be disregarded or given less attention because they have less effect on the rating (Ryskina et al., 2018).

The timeline for this research extended from July 2014 to September 2017. Rehospitalization rates were not incorporated into the quality of care star rating until July

2016. Thus, during part of the time frame for this research (prior to July 2016), rehospitalization rates were not factored into the quality of resident care star rating. Therefore, during half of this research's timeline, SNFs were not incentivized to keep their rehospitalization rates low because they were not penalized for higher rates. As a consequence, this research may not have captured the effect on the risk of rehospitalization of the newly added rehospitalization rate measure to the quality of resident care star rating. Thus, at least for a portion of the study period, Multitasking Theory may help to explain why patients who receive care from SNFs with higher quality of resident care star rating may have an increased risk for rehospitalization within 30 days post hospital discharge to their SNF.

The incorporation of rehospitalization rates into the quality of resident care rating together with the new penalties for rehospitalizations under PAMA's SNF-VBP program (implemented October 2018) suggests that the relationship between the quality of resident care star rating and risk for rehospitalization may reverse itself in the years to come as SNFs are now incentivized to keep their rates of readmission low. To the best of my knowledge, no other research has examined quality of resident care star rating and risk for rehospitalization by insurance type. Future research should examine the effect of the newly imposed penalties under SNF-VBP and public reporting of rates of rehospitalizations on Nursing Home Compare under the SNF quality of resident care rating to see their effects on rehospitalization.

In summary, the hypotheses for research questions 1, 2 and 3 were not confirmed in this research. Hypothesis #1 predicted that *in light of potential favorable selection, FFS beneficiaries would be in poorer health and use more health services, on average, than MA*

enrollees, all else being equal. The quantitative results found no significant differences between the health and utilization of health services between FFS beneficiaries and MA members. However, significant differences were found in the types of SNFs where patients received their care: FFS beneficiaries were more likely to receive care from SNFs with more Medicare/Medicaid-certified beds, a greater percentage of Medicare beneficiaries served, and less patient acuity case mix. SNF interviewees described that their front-line staff do not treat patients differently based on their insurance type, but that MA plans may influence their overall care in terms of their length of SNF stay.

Hypothesis #2 and #3 predicted that *rehospitalization rates from SNFs will be lower among Medicare beneficiaries enrolled in MA than those enrolled in FFS Medicare and that MA plan enrollees will have a lower likelihood of rehospitalization from SNF than Medicare FFS beneficiaries, after controlling for patient and SNF characteristics*, respectively.

Insurance type was not significantly associated with risk of 30-day rehospitalization in the quantitative results. MA members, however, did appear to have a decreased risk for rehospitalization compared to FFS beneficiaries. This trend was non-significant but consistent across analyses, suggesting an increased sample size might have led to a statistically significant result.

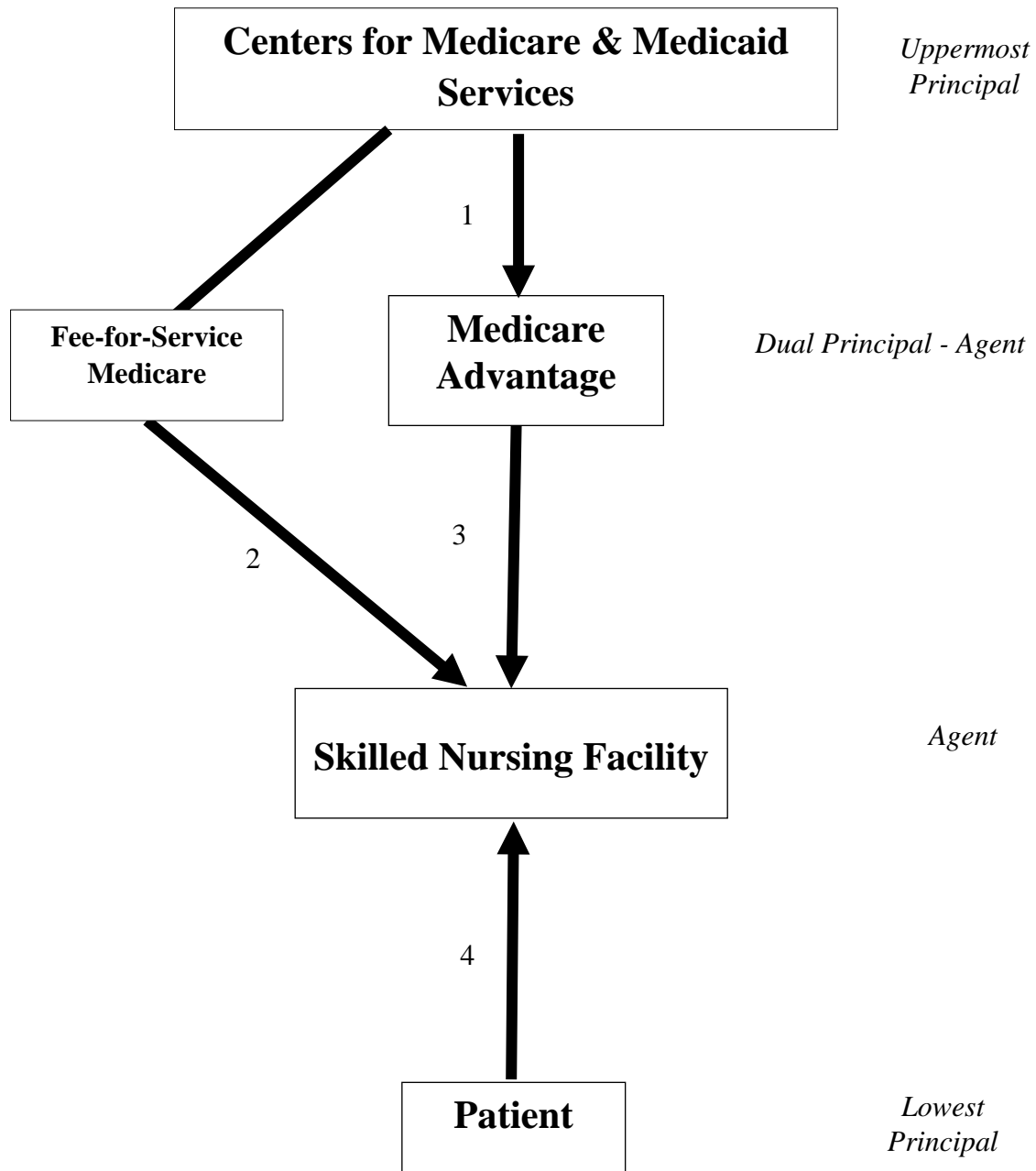
Beyond Medicare plan type, patients who had shorter lengths of SNF stay and patients who had two or more previous hospitalizations in the twelve months prior to their qualifying hospitalization and SNF admission were at increased risk for rehospitalization. Qualitative interviewees reported that they felt that MA members would be at a greater risk for rehospitalization compared to FFS beneficiaries because they typically have a shorter

length of SNF stay. In addition, patients who received care from SNFs with more MA plans, a higher health inspection star rating, and a lower quality resident care star rating were at a decreased risk for rehospitalization 30 days post-hospital discharge to a SNF.

Revised Conceptual Framework

This study proposed a preliminary conceptual framework, which incorporated Resource Dependence Theory and Principal-Agent Theory. Figure 7.1 presents the revised conceptual framework based on the quantitative and qualitative results. The majority of the original conceptual framework held true following the results of the quantitative and qualitative analyses. CMS remains as the *uppermost principal* and the patient as the *lowest most principal*.

Figure 7.1. Revised Conceptual Framework



Patients as the lowest most principal and CMS, MA plans, and SNFs as the agents

(Arrow #4, Figure 7.1)

The qualitative interviews reiterated that patients must rely on all of the actors (CMS, MA plans and SNFs) to act in their best interests. While not a key point in the discussion, the qualitative interviews indicated that patients, in addition to depending on the principals, play an important role in their health outcomes depending on how adherent they are to medical orders and recommendations. Both FFS and MA enrollees depend on CMS and MA plans, respectively, to pay for and provide access to SNF services. On the one hand, MA members are limited in where they can receive services as MA plans selectively contract with a limited number of SNFs. The length of SNF stay is also controlled by MA plans in that MA members typically have shorter lengths of SNF stay compared to FFS beneficiaries as found in both the qualitative and quantitative results. FFS beneficiaries have longer lengths of stay, but the qualitative interviews indicated that they have more autonomy in determining when they are discharged. In particular, many FFS beneficiaries request to be discharged before day 21 to avoid Medicare copayments that kick in at that time. Qualitative interviewees and previous research by Chatterjee and colleagues (2019) indicate that SNFs may also seek to discharge FFS beneficiaries (especially those without secondary insurance) before day 21 to try to avoid amassing and writing off bad debts from patients who cannot pay their copayments starting on day 21. Moreover, while patients rely on SNFs to provide quality care, patients play a key role in their outcomes and risk for rehospitalization. Interviewees indicated frustration in being held accountable for rates of rehospitalizations because patients may not follow care recommendations or orders while in the SNF or once discharged home.

In particular, a few SNF staff interviewees indicated that they are required to protect residents' rights by affording them more autonomy in their care than staff feel is necessary (e.g. allowing patients to refuse participation in therapy, allowing for liberalized diets, etc.). Heart failure patients were described as being especially difficult to care for because they may make poor choices (e.g. eating a poor diet high in sodium), which may cause exacerbation further requiring a rehospitalization.

CMS as the principal and MA plans as the agents (Arrow #1, Figure 7.1)

In the original conceptual framework, one of the key indications for information asymmetry favoring MA plans is their favorable selection of healthier beneficiaries, as indicated in previous literature (Landon et al., 2012a; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Rahman et al., 2015). However, the quantitative results for this research found that there were no statistically significant differences between the demographics and health of patients with FFS versus MA coverage in this research. This may be in part because of the relatively small and homogeneous nature of the sample recruited for this study. Because individuals were selectively recruited for the SNF Connect trial, it is likely that they were homogenous in that they all had to have a diagnosis of or history of heart failure, not have come from a LTC facility, and not have a life-threatening illness that predicted mortality in 6 months or less. Therefore, the revised conceptual framework removed favorable selection from the model. This finding also indicates that CMS' efforts to deter MA plans from favorably selecting healthier beneficiaries have worked in the recent years following risk-adjusted payments to MA plans under the CMS-Hierarchical Condition Categories (HCC) model under the Balanced Budget Act (BBA) of 1997 (Pope et al., 2004).

In addition, with the overall increase in MA enrollment over the years, MA plans may be able to enroll less healthy individuals because the risk pool is larger and they are able to offset those unhealthy, high utilization users with their healthier beneficiaries.

CMS as the principal and SNFs as the agents (Arrow #2, Figure 7.1)

The qualitative interviews further supported the argument that in the relationship between CMS and SNFs, CMS wants to ensure that SNFs are providing quality care to Medicare beneficiaries and SNFs want to remain Medicare-certified. When asked how interviewees felt about the upcoming penalties for 30-day rehospitalizations under PAMA's SNF-VBP, a few SNF interviewees indicated that they thought these were a fair and appropriate way for CMS to ensure that SNFs are taking care of Medicare FFS beneficiaries. Most interviewees, however, indicated that they felt overburdened by the forthcoming penalties because it was one more thing they had to worry about administratively and financially. CMS also uses the Nursing Home Compare website to publicly post the star ratings and rates of rehospitalizations for SNFs under the quality of resident care star rating (as directed under the SNF-QRP) as a way to hold SNFs accountable for their overall care for Medicare beneficiaries. These CMS mechanisms help it, as the principal, to ensure that SNFs as the agents are acting in the best interests of all Medicare beneficiaries.

In addition to the survey and certification process and other mechanisms, CMS seeks to ensure that SNFs provide quality care to Medicare beneficiaries by using a star rating system (overall star rating, which is composed of the SNF's staffing, health inspection and quality of resident care star ratings) and making this information publicly available on their Nursing Home Compare website. As indicated in the qualitative interviews, interviewees

stated that patients and family members do use the Nursing Home Compare website in their search for a SNF. Therefore, SNFs must maintain a higher star rating to help attract business in the competitive SNF marketplace.

The quantitative results indicated that patients in SNFs with higher health inspection star ratings – which are based on annual state surveys and complaints of deficiencies -- were at less risk for rehospitalization compared to patients in SNFs with lower health inspection star ratings. However, patients were at a greater risk for rehospitalization for every unit increase in the quality of resident care star rating, which is based on self-reported data. This apparent discrepancy may be explained by looking at recent literature by Ryskina and colleagues (2018), which examined whether or not the public release of the five star rating system on Nursing Home Compare was correlated with decreased rates of rehospitalizations. Their results revealed that public reporting of the star ratings essentially weakened the association between ratings and rehospitalizations. They used Multitasking Theory to describe this phenomenon (Holmstrom & Milgrom, 1991).

As noted above, Multitasking Theory derives from Principal-Agent Theory and describes that sometimes when principals try to influence the actions of agents (in this case, the quality of resident care in a SNF), agents (SNFs) may “teach to the test” as described by Ryskina et al. (2018). For instance, SNFs may respond to public reporting by increasing their resources and efforts in improving their scores for quality measures that are publicly reported and have an impact on their star rating, and put less effort towards ensuring the quality of unreported measures (e.g. rates of rehospitalization) (Lu, 2012). In this case, SNFs may try to make changes to the care of their patients that are reflected in the star rating system, but have

relatively less impact on the actual care of the patients (Ryskina et al., 2018). Therefore, changes made in response to public reporting may help to improve a SNF's star rating, but have little to no change on other dimensions of patient care (e.g. hospitalizations).

The multifaceted quality rating system for Nursing Home Compare forces SNFs to focus their limited resources and funds on quality improvements that will help improve their star ratings rather than their patient's actual care and outcomes. The fact that rehospitalization rates were not incorporated into the star rating system during a portion of the study period may explain why SNFs with lower quality of resident care had increased risk for rehospitalization. The quality of resident care star rating is based on self-reported MDS data from SNFs and Medicare claims data. Before rates of rehospitalizations were incorporated into the quality of resident care star rating system (July 2016), SNFs may not have focused their efforts on reducing readmissions but instead on quality metrics that were incorporated into the quality of resident care star rating. SNFs may have "taught to the test" to improve their star rating without actually reducing patients' risk for rehospitalization. With the recent implementation of the SNF-QRP under the Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014, SNFs rehospitalizations rates are also now publicly available information incorporated into the quality of resident care star rating. Moreover, under PAMA's SNF-VBP, SNFs are now financially penalized for rehospitalization rates. These new public reporting efforts and financial penalties may help to ensure that SNFs account for rehospitalizations when "teaching to the test" in trying to improve their star ratings and avoid being penalties financially.

MA plans as the principals and SNFs as the agents (Arrow #3, Figure 7.1)

The primary focus of the qualitative interviews was on the relationships SNFs have with MA plans. The original conceptual model indicated that SNFs rely on MA plans for referrals and reimbursement for services provided and MA plans rely on SNFs to provide quality and cost-effective care to their members. MA plans, however, can never truly be sure that the contracted SNFs are acting in the MA plans' best interests due to information asymmetries. MA plans therefore use several mechanisms of control to influence the care of their members by SNFs, a phenomenon supported by the qualitative and quantitative results (i.e. predetermining a patient's length of SNF stay). However, the interviewees indicated that SNFs had far less autonomy and that there is far less information asymmetry than was suggested by the original conceptual framework. SNF interviewees indicated that MA plans' mechanisms of control, particularly case management and determination of length of SNF stay, were more stringently enforced than previously indicated. The primary control mechanism used by MA plans as cited in the interviews is case management. Interviewees indicated that case management with MA plans requires constant and oftentimes cumbersome communication (e.g. faxing) of the medical and therapeutic progress of MA members. MA plans want to discharge patients as quickly as possible to less costly care settings (i.e. home with home health). Other mechanisms mentioned by SNF interviewees were pre-authorization and utilization review, selective contracting with ancillary service providers, having an exclusive network of contracted SNFs, and determining the length of SNF stay. SNF interviewees indicated that having good communication and rapport with the MA plans could help alleviate the imbalance of power, but that ultimately the MA plans have

the final say in patient care. Larger MA plans are typically more difficult to build a rapport with and thus SNFs have little to no agency in determining the overall care of the MA member.

SNFs are reliant on MA plans to fill their census in the highly competitive Denver marketplace, but SNFs have less autonomy in the relationship than originally envisioned. While SNFs need MA plans to help maintain their census, most, if not all, of the SNF interviewees indicated a preference to care for FFS beneficiaries over MA members. SNF interviewees indicated having greater control over the care of FFS beneficiaries, which in their eyes, helped reduce the potential for rehospitalization. MA plans, on the other hand, require short lengths of stay, a lot of oversight, and have lower reimbursement rates than FFS Medicare. Therefore, as indicated by the interviewees, SNFs have to determine if the requirements from MA plans and the lower reimbursement rate (compared to FFS) is worth the potential for more patient referrals.

In conclusion, the original conceptual framework closely matched the study's quantitative and qualitative findings. The quantitative results, however, indicated that there was little to no favorable selection in this sample. It is possible that with a larger, less homogeneous sample that we might have seen different results. However, it is also possible that with the increased enrollment of Medicare beneficiaries into MA plans, the risk pool is getting bigger and MA plans are better able to offset unhealthier members with their healthier membership. Furthermore, the relationship and mechanisms used by MA plans to influence the care of their members in SNFs was much more directed than perhaps previously suggested. SNF interviewees indicated that case management and the shorter length of stays

required by MA plans were cumbersome and posed potential risk for rehospitalization of MA members; this was not seen, however, in the quantitative findings.

Study Limitations

Quantitative methods

This research contributes to the understanding of how the type of insurance someone carries (FFS vs. MA) may influence their risk for rehospitalization, but there are several limitations that should be considered. The main limitations stemmed from the small sample size, limited market characteristics, and the timing of both the quantitative and qualitative results. There were also separate qualitative limitations regarding rigor: credibility, confirmability, transferability, and dependability, which will be discussed.

Sample size. This research found no significant difference in the risk for rehospitalization between FFS and MA patients. However, the sample size is relatively small (n=333), which likely affected the study's ability to detect statistically significant effects and limited the number of control variables used, leading to a possible Type II error, failure to detect a true effect. If the sample size had been larger, we might have been able to see a greater effect of insurance type. The intervention data from the SNF Connect trial were not included in this research because only the usual care group is representative of the typical care provided to heart failure patients in SNFs. To the extent that this study seeks to explore the relationship between MA v. FFS enrollment among typical SNF patients, use of the HF-DMP data for this research was not appropriate. The sample was also very homogenous in that all patients recruited for the study had to have a diagnosis or history of heart failure, not be a LTC resident or have any life-limiting illnesses that would predict death within 6

months or less. LTC residents with heart failure and individuals with life-limiting illnesses are typically at an increased risk for rehospitalization (Allen et al., 2010; Foebel et al., 2013; O'Neill et al., 2016). Therefore, the exclusion of those individuals may have had an effect on the rehospitalization rates in this research. However, it is unclear whether or not those individual's insurance type (FFS vs. MA) would have had an effect on their risk for rehospitalization.

A sensitivity analysis was conducted to test if the sample size had something to do with the non-significant findings. The previously omitted seven individuals who died within the 30-day window without going to the hospital prior to their death were included back in the sample ($n=340$). These individuals who died may have required a hospitalization before passing away. Therefore, they were marked as having experienced a rehospitalization within 30 days of discharge from the hospital to a SNF for purposes of this sensitivity analysis. Bivariate, GEE, and propensity score matching (PSM) analyses were run with the new sample size. The bivariate analyses did not show a significant association between risk of rehospitalization and insurance type. However, plan type was significant in both the GEE and PSM three star rating analyses (not the overall star rating analyses), indicating that MA members were less likely to be rehospitalized compared to FFS beneficiaries ($B=-0.528$, $p=0.041$; $B=-0.107$, $p=0.040$). These findings are consistent with previous research indicating that MA members are less likely to be hospitalized than their FFS counterparts (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). It is possible that the seven individuals who died would have needed to be

hospitalized, but potentially had a do not resuscitate (DNR) order or a Physician Orders for Life-Sustaining Treatment (POLST) form that indicated a medical order not to be hospitalized. These are all speculations, so these results cannot be reported as the main findings. In light of recent research, though, the results of this research do align with some findings that insurance type has no effect on the risk for rehospitalization (Friedman et al., 2009; Oh, 2017). It should be noted that percentage of patients with FFS vs. MA in the sample (FFS=62% vs. MA=38%) reflected 2019 national enrollment rates (FFS=66%, MA=34%) (Jacobson et al., 2019).

Additionally, the small sample precluded delving into plan type more deeply, whether in relation to the general type of MA plan (e.g. Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), Point of Service plans (POS)) or specific MA plan provider in the analyses. It is highly likely that there would not have been sufficient variance to subdivide the general FFS v. MA plan variable further. However, interviewees from the qualitative interviews indicated that the size of an MA plan influenced its ability to coordinate and communicate with case managers. SNFs felt that they were able to establish better rapport and communication with smaller MA plans. In addition, Kaiser Permanente was specifically described by interviewees as being a highly sought after MA plan to contract with because it helps SNFs maintain their census, even though it was also reported to use more intensive mechanisms of control than other MA plans do. Looking at the type of MA plan would be interesting for future research to examine.

Market characteristics. This research has potential limitations, which include external validity issues – that is, transferability to SNF markets outside the Denver

metropolitan area and to SNFs that do not match the characteristics of those studied. Nearly all of the SNFs recruited from for the SNF Connect trial were both for-profit (95.5%) and part of a chain (96.7%). Nationally, 70% of the SNFs in the United States are for-profit, 24% non-profit and 6% government-run (Harris-Kojetin et al., 2016; MedPAC, 2015b). Therefore, it will be difficult to transfer both the quantitative and qualitative results of this study to SNFs that are not for-profit, government-owned, and/or not part of a chain (transferability will be discussed more in the qualitative limitation section). The homogeneity of the SNFs used for this research precluded the inclusion of chain affiliation and ownership status as covariates in the quantitative analyses. When comparing ownership status, previous literature has reported mixed results, with Zimmerman et al. (2002) finding chain-affiliated SNFs having a higher risk of rehospitalization compared to Li et al. (2015) who found that chain-affiliated SNFs had reduced risk of rehospitalizations. Patients receiving care in a for-profit SNF were also found to be at greater risk for rehospitalization compared to patients in non-profit and government-run SNFs (Li et al.; Neuman, et al., 2014; Zimmerman et al., 2002).

Timing. The quantitative data and the qualitative interviews were collected for this research prior to the implementation of the PAMA SNF-VBP program penalties for SNFs for 30-day rehospitalizations. For the quantitative analyses, it would have been interesting to add a covariate indicating whether a SNF had been penalized for their 30-day rehospitalizations. This may have been telling given that previous literature by Rahman and colleagues (2016) found that patients who received care from SNFs with the lowest rehospitalization rankings had fewer rehospitalizations compared to patients discharged to SNFs with greater rehospitalization rates. Future research should examine whether or not a SNFs' penalties

under the PAMA SNF-VBP program have an influence on a patient's risk for rehospitalization.

The qualitative aspect of this research was important because it shed light on how SNFs were preparing for the impending potential penalties. Seventy-three percent of the SNFs (8 of 11 SNFs) received a penalty for their 30-day rehospitalizations from October 2018 through September 2019. The majority of SNF interviewees were not concerned about their SNF receiving penalties for rehospitalizations at the time of the interviews (before the implementation of the PAMA SNF-VBP program) and were confident in the care that their SNFs provide. Future research should obtain the perspectives of SNFs following the implementation of the penalties to determine what they think of the newly implemented penalties and also what efforts they are making to reduce the risk of rehospitalization for their patients.

Qualitative limitations

Qualitative research often comes with concerns that the findings are biased. Therefore, it is important to describe the potential limitations related to the qualitative research, but also to describe measures that were taken to assure credibility, confirmability, transferability and dependability of the data and analysis.

Credibility. The credibility of qualitative research depends on the extent to which results are believable and verifiable by study participants (Schoenberge et al., 2011; Trochim, 2006). Credibility is enhanced through four key types of triangulation: method, data source, investigator, and theory. This research triangulated its methods by using both quantitative and qualitative data in addition to multiple interviews with various key informants from 11

different SNFs. This research is, to the best of my knowledge, the only study to use mixed methods to determine whether insurance type (FFS vs. MA) influences risk for rehospitalization. The 23 interviewees used for this research came from various backgrounds within the SNF environment thus increasing data source triangulation. However, additional data sources would have further increased the credibility of the research. The interviews focused only on the perspectives of SNF staff members. An important aspect of this research and as outlined in the conceptual framework is that there are interdependent relationships among key actors— CMS, MA plans, SNFs and patients—in the provision of SNF care to Medicare patients.

Obtaining interviews from the other stakeholders (CMS, MA plans and patients), however, was beyond the scope and feasibility of this research. Still, the perspectives of MA plans, CMS and patients would have helped to further describe the asymmetries in power and information present in rehospitalization-health plan dynamic. Gaining valuable insight from MA plans, for example, would have shed light on their interactions, contracting, and mechanisms of control used in working with SNFs. An example is Gadbois et al. (2018) based on 154 interviews with stakeholders from MA plans, hospitals, and SNFs in eight major markets in the United States. The results were similar to those found in the qualitative interviews for this research, though the interviews conducted here were not national in scope but instead focused on a particular market (Denver metropolitan area). Although limited in the range of stakeholders and regions examined, the present study was timely, permitting discussion of impending penalties for 30-day rehospitalizations under the PAMA SNF-VBP

program. To the best of my knowledge, no other research has qualitatively examined SNF staff members' perspectives on these potential penalties.

To provide investigator triangulation, this research used multiple investigators to verify the research and results. Oversight was provided by my committee members who have expertise in qualitative research as well as the use of a second-coder who helped corroborate key themes and subthemes. Lastly, theory triangulation was used in this research to verify the results of the qualitative analysis. Resource Dependence Theory and Principal-Agent Theory along with the empirical literature helped guide the development of the conceptual framework, hypotheses, and thus the analysis used for this research. Multitasking Theory was added to the revised conceptual framework to help provide a better understanding of the results.

Confirmability. It is important that qualitative research can be corroborated and that the investigator does not impose their own biases. To strengthen confirmability, all transcripts were double-checked for accuracy, coded, modified and finalized as described in Chapter 4. Previous literature by Carter (2014) also describes the necessity for qualitative researchers to report negative results that may be counter to what was hypothesized. All results, both consistent and counter to my hypotheses have been described in the qualitative results. For example, SNF interviewees predicted that MA members would be at a greater risk for rehospitalization compared to their FFS counterparts. However, this contrasted with findings from previous literature as well as this study's quantitative findings (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012;

Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006).

Transferability. As described previously, this study has limitations related to the transferability of the qualitative findings to that of other SNFs nationwide. All of the SNFs recruited for the qualitative interviews were for-profit and chain-affiliated. Therefore, these findings may not apply to SNFs that are not-for-profit, government-owned, or chain-affiliated. In addition, those SNFs that agreed to participate in both the SNFConnect trial and in the qualitative interviews for this research may not be representative of those facilities that refused participation. However, the interview protocol used for this research (Appendix C) was extensive and allowed me to provide an in-depth and rich description of the results. Other researchers, therefore, can look at the interview protocol and the results to determine how well they apply to the context within which their research takes place (Bassey, 1981; Lincoln et al., 1985; Shenton, 2004). It is likely that these qualitative results apply to other SNFs throughout the country that must work with MA plans to maintain their censuses. However, the analysis related to the description of the SNF marketplace in the Denver metropolitan area may not relate to states that have Certificate of Need requirements limiting the opening of new SNFs. The Denver metropolitan market was described by interviewees as being highly competitive with new “stand-alone SNFs” being built ahead of patient demand. Because Colorado is not a Certification of Need state, it is unique in that SNFs can be built without demonstrating a need for their services. Therefore, the SNF market in Colorado may be unlike that of other states with Certificate of Need requirements and thus, the results related to the qualitative analysis may not be transferable to those states.

Dependability. One of the most difficult aspects of qualitative research lies in its ability to be replicated (Schoenberg et al., 2011). To increase dependability, I documented the procedures used to gather and code all of the data as described in Chapter 4. However, the sampling method used for this research may not be easily replicated. While the literature regarding SNF characteristics that predict rehospitalizations (e.g., SNF size, profit status, chain affiliation) aided in site selection, there was no pre-existing sampling frame from which to identify and select interview subjects. Therefore, the sampling method of this research may serve as a limitation. Moreover, I was unable to obtain participation from three of the preselected 14 SNFs. The three SNFs who refused participation may be different from those 11 facilities who agreed to provide interviews and therefore the results may not be representative of the Denver market. However, two SNFs provided me with more than two interviewees so I was able to interview a total of 23 of the proposed 28 interviewees. I confirmed with my committee co-chairs that 23 interviews was sufficient and that I had reached saturation in the information I obtained wherein I ceased to hear anything new before the 23rd interview. In addition, throughout the SNF Connect study, countless staffing changes occurred at the participating SNFs. Therefore, some administrators and directors of nursing whom I contacted for this research were unfamiliar with the SNF Connect study and were skeptical of participation. With so much staff transition, it was sometimes difficult to identify the current administrator or director of nursing and in some cases, those positions were vacant.

Conclusion

This research used mixed methods to describe the influence of insurance type (FFS vs. MA) on a patient's risk for rehospitalization within 30 days post-hospital discharge to a SNF. The quantitative results of this research indicate that there was no difference in risk for rehospitalization based on a patient's insurance type (FFS vs. MA). These results concur with the findings of previous studies (Oh, 2017; Raetzman et al., 2015; Smith et al., 2005). However, while not significant, the results seem to indicate that MA members are at less risk for rehospitalization compared to FFS beneficiaries (as later indicated in the sensitivity analysis). Most previous literature points to a similar effect, in which patients with MA are less likely to be rehospitalized compared to FFS beneficiaries (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). The twenty-three qualitative interviews with SNF staff members from 11 SNFs in the Denver metropolitan area predicted the opposite effect. Interviewees predicted that MA members would be at a greater risk for rehospitalization compared to FFS beneficiaries because MA plans require shorter lengths of SNF stay, which interviewees perceived put them at a greater risk for rehospitalization. The quantitative results indicated that SNFs that contract with more MA plans showed significantly less risk for their patients being rehospitalized compared to SNFs with fewer MA plans. The intensive mechanisms of control used by MA plans to attempt to influence the overall care of their members (as described in the qualitative interviews) may lower their members' risk for rehospitalization. The mixed methodology used for this

research provides a novel perspective on the potential influence of insurance type on patients' care while in SNF.

The next chapter will provide a conclusion for this research. The conclusion will summarize the findings, highlight the empirical and theoretical contributions, explore implications of the study findings for policy and practice, and make recommendations for future research.

CHAPTER 8

CONCLUSION

Rehospitalizations have become a recent policy focus on the part of CMS in light of the rising costs as well as the poor health outcomes associated with them (Administration on Aging (AoA), 2012; Agotnes et al., 2016; America's Health Insurance Plans (AHIP), 2010a; Kocher et al., 2011; Mor et al., 2010; Yoo et al., 2015). Patients with heart failure are at an increased risk for rehospitalization because they often have multiple confounding comorbidities and their risk for exacerbation related to their disease leaves them at increased risk for rehospitalization (Allen et al., 2011; Azad et al., 2014; Desai et al., 2012; Jencks et al., 2009; Kim et al., 2013). Many patients with heart failure who are hospitalized require further care in a skilled nursing facility (SNF) for their post-acute care needs (Allen et al., 2011; American Health Care Association (AHCA), 2011; MedPAC, 2010; White, 2003). However, because of the instability of their disease, they are often rehospitalized shortly after their SNF admission (Allen et al., 2011; Boxer et al., 2012; Chen et al., 2012; Donelan-McCall, Eilersten, Fish, & Kramer, 2006; Jurgens et al., 2015b; MedPAC, 2018b; Ouslander, Diaz, Hain, & Tappen, 2011; Weerahandi et al., 2019).

Previous literature has examined reasons for their increased risk for rehospitalization (AoA, 2012; America's Health Insurance Plans (AHIP), 2010a; Clark et al., 2017; Graham,

Prvu Bettger, Middleton, Spratt, Sharma, & Ottenbacher, 2017; Hutt, Frederickson, Ecord, & Kramer, 2003; Intrator, Castle, & Mor, 1999; Konetzka, Stuart, & Werner, 2018; Lichman et al., 2010; Neuman, Wirtalla & Werner, 2014; Pandolfi et al., 2017; Ogunneye et al., 2015; Rahman, Norton, & Grabowski, 2016; Toles et al., 2014; Unroe, Greiner, Colon-Emeric, Peterson, & Curtis, 2012; Zimmerman, Gruber-Baldini, Hebel, Sloane & Magaziner, 2002). However, few studies have examined the potential influence of insurance type on the risk for rehospitalization for patients with heart failure in SNFs (besides Huckfeldt et al., 2017). In particular, few, if any have used mixed methods to determine how insurance type (Fee-for-Service (FFS) vs. Medicare Advantage (MA)) coverage on the part of a patient with heart failure in SNF may influence a patient's risk for rehospitalization within 30 days post-hospital discharge to a SNF.

This chapter reviews this study's contributions to the literature, policy and practice implications, and areas for further research. First, this chapter summarizes the main research questions that guided this study, the methods, and the main findings. The next section highlights the study's major empirical and theoretical contributions. Next, it discusses the implications of study findings for policy and practice. The contributions of the study are described next with respect to proposals for future research. The final section is the conclusion to this study.

Overview of Research Questions, Methods, and Findings

This research focused on how insurance type (FFS vs. MA) may influence the risk of rehospitalization for patients with heart failure receiving care in a SNF. Previous literature pointed to MA members being healthier compared to their FFS counterparts due to potential

favorable selection on the part of MA plans (Elliott et al., 2011; Goldberg et al., 2017; Hellinger et al., 2000; Landon et al., 2012a; MedPAC, 2012; Miller et al., 1998; Morgan et al., 1997; Newhouse et al., 1997; Newhouse et al., 2012; Rahman et al., 2015; Riley, 2012). MA members have also previously demonstrated less risk for rehospitalization compared to FFS beneficiaries (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). This research sought to address whether or not patients with heart failure in SNFs would see similar effects on their risk for rehospitalization based on their insurance. This study proposed a preliminary conceptual framework, guided by Resource Dependence Theory and Principal-Agent Theory, to help identify the main actors in this research, which included CMS, MA plans, SNFs, and patients. A series of principal-agent relationships characterized the relationships and information asymmetries between the actors (each actor served as a principal or agent (MA plans as dual principal-agents)). Resource Dependence Theory was used to describe the highly competitive SNF marketplace and the methods SNFs use to compete for limited patient referrals.

Three primary research questions guided the quantitative portion of this research: 1) do the personal characteristics of SNF patients with heart failure with MA coverage differ from SNF patients with heart failure enrolled in FFS Medicare?; 2) Do SNF patients with heart failure with MA coverage have lower rates of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare?; and 3) Do SNF patients with heart failure have MA coverage have a lower likelihood of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare, after adjusting for and matching

individual-level and facility-level factors? The qualitative research was guided by the research question of how does the type of Medicare coverage – FFS v. MA – of patients with heart failure in SNF influence their skilled nursing care and, in particular, their risk of rehospitalization? These research questions were answered using mixed methods.

The quantitative research used data collected as part of the SNF Connect study, and employed bivariate and multivariate analyses (GEE and Propensity Score Analyses) to answer the three research questions. The results indicated that there were no significant individual-level differences between patients enrolled in FFS versus MA, but there were differences in the SNFs in which they received care. FFS beneficiaries were more likely to receive care from SNFs with more SNF-certified beds, a higher proportion of Medicare beneficiaries served, and a lower patient case mix acuity. For research questions 2 and 3, the results indicated that insurance type did not have a statistically significant effect on the risk for rehospitalization within 30 days of hospital discharge to a SNF. However, while not significant, all results (including significant findings in sensitivity analyses) pointed to MA members being at lower risk for rehospitalization compared to FFS beneficiaries. Having a shorter length of SNF stay and having had two or more previous hospital admissions within the last 12 months (prior to the qualifying hospitalization) suggested increased risk for rehospitalization. Patients who received care in a SNF with more MA contracts, a higher health inspection star rating, and a lower quality of resident care star rating were at lower risk for rehospitalization.

The qualitative results indicated that SNFs have an overall preference to serve FFS beneficiaries because they feel they have more control over the care provided and are

reimbursed at a higher rate than when they serve MA members. Most SNFs need to contract with MA plans to maintain the flow of referrals and to supplement business derived from FFS Medicare. MA plans were described as using several mechanisms to influence and control the care provided to members by SNFs, with a goal of saving money. The primary mechanism used by MA plans, as described by interviewees, was case management. The intensive oversight provided by MA plans over the care of their members was described by interviewees as being cumbersome and frustrating. However, many interviewees mentioned that having good communication with the MA plans' case managers was key to ensuring better quality of care and outcomes for patients. Another key mechanism of control by MA plans was having shorter lengths of SNF stay for their members so that they could discharge to a lower-cost setting as quickly as possible, which is typically home with home health care. Interviewees described that MA plans enforce shorter lengths of SNF stay by using algorithms to predetermine allotted lengths of stay or by using intensive case management to ensure that the length of stay is as short as medically possible. Overall, interviewees indicated that MA members had shorter lengths of SNF stay and that the shorter lengths of stay put MA members at greater risk for rehospitalization. However, the quantitative results and previous literature points to the opposite effect, wherein FFS beneficiaries are at a greater risk for rehospitalization compared to MA members (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006).

Contributions to Research

Empirical contributions

The main purpose of this research was to fill a gap in the literature, as described by Agotnes and colleagues (2016). They recommended a mixed methods approach to better understand the dynamics underlying rehospitalizations. This research, to the best of my knowledge, is the only study to use mixed methods in determining whether insurance type (FFS vs. MA) influences risk for rehospitalization. In particular, this research sought to fill a gap in describing how the type of insurance a patient with heart failure has while receiving care in a SNF may influence their risk for rehospitalizations.

Previous literature on this topic has primarily used quantitative methods (Huckfeldt et al., 2017). Results indicated that patients with heart failure admitted to a SNF with FFS coverage were at a greater risk for rehospitalization compared to MA members (Huckfeldt et al., 2017). While not significant, this research found similar results using the quantitative methodology, but also found that other patient- and facility-related factors may have equal or greater influence on the risk for rehospitalization. The quantitative results indicated that patients who had shorter lengths of SNF stay and/or who had two or more previous hospital admissions in the 12 months prior to their qualifying hospitalization for SNF admission had greater risk for rehospitalization. In addition, patients who received care from SNFs with more contracted MA plans, a higher health inspection star rating and a lower quality of resident care star rating were at less risk for rehospitalization. No previous literature has found a significant relationship between the number of contracted MA plans or the quality of resident care star rating and risk for rehospitalization. The results of the quantitative research

related to those specific variables adds to the literature surrounding risk for rehospitalization of patients with heart failure, and of SNF patients generally.

The qualitative methods used for this research aimed to fill a gap in the literature surrounding SNFs' perspectives on how a patient's insurance type (FFS vs. MA) influences their care and risk for rehospitalization. In particular, the qualitative interviews provided perspectives of how MA plans' mechanisms of control affects the care of their members. Recent research by Gadbois and colleagues (2018) also helped fill this gap in the literature surrounding MA mechanisms of control. They found that MA plans primarily try to influence the length of SNF stay and to limit members' choice of SNF to help reduce post-acute care spending. These findings were based on the perspectives of administrative and clinical staff from MA plans, hospitals, and SNFs from around the country (Gadbois et al., 2018). The geographic breadth and scope of the key informants interviewed by Gadbois and colleagues (2018) was not feasible in the context of the present study. However, the results of the qualitative interviews used for this research supported Gadbois et al.'s (2018) findings in that SNFs viewed case management and limitations on length of SNF stay for MA members as key mechanisms of control employed by MA plans.

SNF interviewees saw the shorter lengths of SNF stay imposed by MA plans as a potential risk for rehospitalization. However, the quantitative results for this research showed the opposite effect, where MA members were at lower risk for rehospitalization compared to FFS beneficiaries. The mixed methods approach of this research helps to better describe the perhaps misappropriated skepticism on the part of SNF staff about the risks for MA members for rehospitalization.

Theoretical contributions

This research developed an initial conceptual model guided by Resource Dependence Theory and Principal-Agent Theory to describe how the multiple relationships between the Centers for Medicare and Medicaid Services (CMS), MA plans, SNFs and patients have the potential to influence the risk for rehospitalization. To the best of my knowledge, these two theories have not been used together in a conceptual framework to describe the phenomenon of risk for rehospitalization of patients with heart failure in a SNF setting. Resource Dependence Theory helped explain the competitive nature of the SNF marketplace in the Denver metropolitan area where SNFs must compete with one another for patients in need of skilled nursing and rehabilitation (Pfeffer et al., 1978). To help maintain their census, many SNFs contract with MA plans to supplement their FFS beneficiaries as described by the qualitative interviewees. However, interviewees described how MA plans exert power over SNFs through contract negotiations (which includes the capitated payment rate paid per member served) and other mechanisms of control (Gayner et al., 2001). Previous literature used Resource Dependence Theory in a similar manner to describe how SNF facilities seek to obtain referrals and revenue by opening skilled units and contracting with MA plans (Banaszak-Holl et al., 1996).

Principal-Agent Theory describes the information asymmetries that exist between the actors – CMS, MA plans, SNFs and patients. Principals can never be quite sure that agents are acting in their best interests (Jensen et al., 1976; Mitnick, 2006; Ross, 1973). Therefore, because of the uncertainty, principals use incentives and mechanisms of control to try to align agents' behavior with their own interests (Jensen et al., 1976; Mitnick, 2006; Ross,

1973). In this research, a dual-principal-agent concept was applied to the conceptual framework to describe the dual role that MA plans play: as the agent to CMS and as the principal to SNFs (Angell, 1993; Langer, Schroder-Back, Brink & Eurich, 2004; Langer, Schroder-Back, Brink & Eurich, 2008; Moe, 1984; Shortell, Waters, Clarke & Budetti, 1998). CMS acts as the uppermost principal and patients as the lower-most principal in the conceptual model.

Following analysis of the quantitative results, this research incorporated Multitasking Theory into a revised conceptual framework. Multitasking Theory is an extension of the Principal-Agent Theory, which is used to describe how principals use mechanisms of control and metrics on an agent as a way to influence their care, but this may cause the agent to “teach to the test” to meet those metrics (Holmstrom et al., 1991; Lu, 2012; Ryskina et al., 2018; Werner et al., 2009). By focusing their efforts on specific metrics, agents may disregard other non-measured metrics (Holmstrom et al., 1991; Lu, 2012; Ryskina et al., 2018; Werner et al., 2009). CMS currently uses the Nursing Home Compare star rating system as a way to hold SNFs accountable. However, the metrics used in the Nursing Home Compare star rating system may influence SNFs to increase their performance in those specific measured metrics while omitting or disregarding other non-reported measures. For example, until July 2016, SNFs’ rates of rehospitalization were not included in the calculation of the quality of resident care star rating. Therefore, SNFs may not have focused on reducing readmissions as they did not affect their quality of resident care star rating. In addition to incorporating rehospitalization rates into the scoring of the quality of resident care star rating (as of July 2016), starting in October 2018, under the SNF-Quality Reporting

Program (SNF-QRP), these rates are now publicly available on the Nursing Home Compare website. With rehospitalization rates now incorporated into the calculation of the quality of resident care star rating as well as being made publicly available, Multitasking Theory can be used to hypothesize that SNFs will focus more on reducing their rehospitalization rates.

Overall, this research contributed to the theoretical literature by describing the relationship between CMS, MA plans, SNFs and patients and their potential to influence the risk for rehospitalization of patients in SNF. This research used Resource Dependence Theory, Principal-Agent Theory and Multitasking Theory to describe the relationship between the multiple actors. To the best of my knowledge these three theories have never been used in tandem to describe the risk of rehospitalization for patients receiving care in SNFs.

Implications for Practice

In general, this research found that MA members were at less risk for rehospitalization compared to their FFS counterparts (while not significant). CMS pays MA plans a capitated, monthly payment per member. Therefore, MA plans use mechanisms of control such as case management and shorter lengths of SNF stay to keep their costs down. SNF staff members described the mechanisms of control used by MA plans (e.g. case management) as cumbersome and often frustrating. SNF staff also perceived MA members to be at a greater risk for rehospitalization because they had shorter lengths of SNF stay compared to FFS beneficiaries. However, as previous literature and these findings point out, those mechanisms of control may actually help protect MA members from the risk of rehospitalization (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al.,

2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). In contrast, there is little oversight over the day-to-day care of FFS beneficiaries on the part of CMS. SNFs have nearly complete control over the nursing, therapy, case management and length of stay of all FFS patients. As an interviewee described, without much oversight, SNFs could potentially commit fraud by keeping FFS beneficiaries longer than necessary in order to obtain a larger reimbursement without necessarily providing better care. The intensive case management of MA plans potentially serves as a “second set of eyes” on the overall quality of care of MA members, thus reducing the risk for rehospitalization. It is recommended that SNFs look to MA mechanisms of control as tools that can be used to ensure the proper oversight of their FFS patients who appear to be at a greater risk for rehospitalization. In the advent of financial penalties under PAMA’s SNF-VBP, it is likely that SNFs will be looking for any potential avenue that helps to reduce their rates of rehospitalization.

Heart failure is a difficult chronic illness to care for as it is associated with a high risk for rehospitalizations (Allen et al., 2011; Boxer et al., 2012; Chen et al., 2012; Donelan-McCall, Eilersten, Fish, & Kramer, 2006; Jurgens et al., 2015b; MedPAC, 2018b; Ouslander, Diaz, Hain, & Tappen, 2011; Weerahandi et al., 2019). SNF interviewees described the difficulties of caring for such high acuity patients, who typically have multiple comorbidities and whose health can “change on a dime”. Some SNFs had set up formal heart failure programs within their facility that incorporate best practices. This research did not look at whether or not these efforts on the part of SNFs to curtail rehospitalizations of their heart failure patients prevented readmissions. However, previous literature found that such efforts

minimized the risk for rehospitalization (Dolansky et al., 2012; Jacobs, 2011; Jurgens et al., 2015a).

In addition, as found in the quantitative research, patients with two or more hospitalizations in the previous 12 months were at a greater risk of rehospitalization compared to individuals who had not been hospitalized in the previous 12 months. Another recommendation is thus for SNFs to identify patients with such previous hospitalizations (whether heart failure-related or not). By identifying high-risk patients early, SNFs can make a concerted effort to provide more education to the patient alongside more oversight of care to try to reduce the risk for rehospitalization. It is also recommended that SNFs obtain patients' medical histories from health information exchanges (HIE) such as Colorado Regional Health Information Organization (CORHIO), rather than relying on patient-self report due to risk of underreporting (Daddato et al, 2019).

In addition, patients who received care from SNFs with a greater number of contracted MA plans were less likely to be rehospitalized. However, the number of MA plans that a SNF contracts with is not public information. Indeed, gathering this information for this research proved difficult, even for a researcher with Institutional Review Board approval. Thus, prospective patients cannot use this finding to guide their choice of SNF. This finding does make a theoretical contribution, however: the association between a greater number of MA plan contracts and a reduced risk for rehospitalization harkens back to the previous discussion of how mechanisms of control used by MA plans can provide a “second set of eyes” on patients. This finding, if replicated, points to the need to allow patients to have the most information available to them when selecting a SNF. It would be helpful for CMS’

Nursing Home Compare website to list the specific MA plans that each SNF contracts with as public information. The number of certified Medicare-Medicaid beds, ownership type, hospital affiliation and other information is publicly listed on the general information/overall star rating page for each SNF. However, posting the specific MA plans that SNFs participate on CMS' Nursing Home Compare website may be difficult given that MA contracts may change throughout the years. However, it is conceivable that during annual state inspections, surveyors could obtain the number of MA plans and the specific names of the plans. MA members are limited in their selection of which SNFs they can receive care from due to their limited networks. However, by publicly presenting this information, it might be easier for patients and their families to search for a SNF within their network on their own. FFS beneficiaries and MA members may find having the MA plans listed on the Nursing Home Compare website helpful in light of the findings of this research wherein SNFs that have more MA plan contracts showed less risk for their patients to be rehospitalized.

Lastly, this research found that a SNF's Nursing Home Compare health inspection and quality of resident care star ratings are associated with a patient's risk for rehospitalization. The qualitative interviewees indicated that when searching for a SNF to receive care from, many patients and family members use the internet (primarily Google), the physical appearance of the facility, geographic location of the facility relative to family members, or word of mouth recommendations. The interviewees also pointed to the Nursing Home Compare star rating system as one of the best tools for patients to select a SNF. Interviewees stressed that they always encourage patients to look at and compare ratings on the Nursing Home Compare website. This practice should be continued, perhaps reinforced

by efforts undertaken by CMS to make the website more publicly known so that patients and family members can get the most accurate information possible. The quantitative results from this research indicate that a SNFs' star rating related to their health inspection and quality of resident care star ratings are associated with rehospitalization risk. These findings suggest that patients should seek to receive care from SNFs with higher health inspection and quality of care star ratings, particularly now that rehospitalization has been added to the latter, if the likelihood of rehospitalization is going to be minimized.

Implications for Policy

Overall, MA members and patients who received care from SNFs that contracted with more MA plans had reduced risk for rehospitalization. While not significant in the quantitative results, MA members appeared to have less risk for rehospitalization compared to FFS beneficiaries. In addition, patients who received care from SNFs that contracted with more MA plans were at less risk for rehospitalization compared to patients who received care from SNFs with fewer MA plans. These quantitative findings contrasted with those from the qualitative interviews, where respondents felt that MA members were at a greater risk for rehospitalization because of their shorter lengths of SNF stay. They also expressed an overall preference to care for FFS beneficiaries because of the often-overbearing oversight of MA plans on their members' care. However, the intensive case management and other mechanisms of control used by MA plans may have protective effects by providing additional oversight on their members' care in the SNF setting. These findings may indicate to CMS that MA plans provide better outcomes (i.e. fewer rehospitalization rates) to their members compared to FFS Medicare. Although MA plans seem to provide better health

outcomes, MA members cost more to CMS, on average, per patient than Medicare FFS (MedPAC, 2016; Zarabozo et al., 2009). However, the higher payment rates to MA plans may be worth the reduced risk for rehospitalization of their members with the likelihood of saving CMS millions of dollars in the end for expensive rehospitalizations.

The Nursing Home Compare star rating system provides patients and the community at large with insight into SNFs performance. Based on the findings from this research, it appears that the unbiased, random health inspections performed by trained surveyors reliably predict rehospitalization rates. That is, patients in this research were at less risk for rehospitalization if they received care in SNFs with higher health inspection star ratings. However, the opposite held true for the quality of resident care star rating: patients were at a greater risk for rehospitalization if they received care from SNFs with higher star ratings. As described in the revised conceptual framework in Chapter 7, the Multitasking Theory provides an explanation: SNFs may be teaching the test while ignoring other metrics (e.g. hospitalizations) that are not measured (until July 2016). With the new requirements that SNF rehospitalization rates be incorporated into the quality of resident care star rating (as of July 2016), with rehospitalization rates being publicly reported under the SNF-QRP (October 2018), and with the advent of the financial penalties for rehospitalizations under the SNF-VBP program (October 2018), SNFs may start to focus more on preventing rehospitalizations. However, a policy recommendation would be that data for the Nursing Home Compare star ratings come directly from third party observation. SNF self-report of some of the data for the metrics used in the quality of resident care star rating opens the Nursing Home Compare star rating system up for fraud on the part of SNFs trying to get the

highest star rating possible. By limiting the use of self-reported data, CMS can help reduce the risks related to the reliability and validity of the data.

When asked about upcoming penalties under PAMA's SNF-VBP, many interviewees felt that it was unfair for CMS to financially penalize SNFs for rehospitalizations of their FFS patients. Most expressed frustration that many rehospitalizations are out of their control given that many of the higher acuity patients they are seeing more frequently are more difficult to care for and are constantly on the verge of requiring rehospitalizations. Patients with heart failure, in particular, are at an increased risk for rehospitalization given their multiple comorbidities and risk for exacerbation (Allen et al., 2011; Azad et al., 2014; Boxer et al., 2012; Chen et al., 2012; Desai et al., 2012; Donelan-McCall, Eilersten, Fish, & Kramer, 2006; Jenks et al., 2009; Jurgens et al., 2015b; Kim et al., 2013; MedPAC, 2018b; Ouslander, Diaz, Hain, & Tappen, 2011; Weerahandi et al., 2019). SNF interviewees also expressed frustration with being held financially responsible for patients making poor decisions regarding their health. Specifically, SNFs (primarily stand-alone SNFs) expressed frustration with being held to the same requirements as LTC facilities under the 1987 Nursing Home Reform Law that affords patients autonomy in their care (e.g. can refuse therapy, add table salt to their prescribed no-added salt diet). Stand-alone SNFs felt that facilities that provide post-acute care to patients should not be held to the same requirements for LTC residents. Patients who receive post-acute nursing and rehabilitation care are in the SNF for recovery following a hospitalization with the goal of rehabilitating them back to the community (or the residence they were at prior to their hospitalization, if possible). However, when post-acute patients are treated with the same leniency as a LTC resident (e.g. they can

eat what they want, refuse therapy), this has the potential to increase their risk for rehospitalization (especially for patients with heart failure). Therefore, there should be separate guidelines for post-acute rehabilitation patients and LTC residents. The current penalties under PAMA's SNF-VBP target all-cause rehospitalizations from SNFs within 30 days post-hospital discharge to the facility for FFS beneficiaries only. Therefore, the current penalties may be penalizing SNFs for rehospitalizations that were, as they described, out of their control.

Lastly, the transfer of information from the hospital to the SNF for patients with heart failure is key in ensuring that they receive the appropriate care. Without consistent methods to transfer information from the hospital to SNF, medical errors can result -- from misunderstandings about the patient's current health status and from poor data on medications -- resulting in increased risk for rehospitalization (Burton et al., 2012; Clark et al., 2017; Committee on Quality of Health Care in America, Institute of Medicine, 2001). One Director of Nursing described trying to obtain patient information from hospitals (besides the discharge summary) as trying to get through "Fort Knox". Therefore, many of the SNF interviewees reported using the health information exchange (HIE), Colorado Regional Health Information Organization (CORHIO), to obtain the full medical chart for their patients with heart failure. As referenced, CORHIO proved invaluable to obtaining rehospitalization data for the SNF Connect trial (Daddato et al., 2019). CORHIO also acted as a key resource for SNF staff to access necessary information to help them adequately care for their patients with heart failure. These results highlight the imperative for health information exchanges, such as CORHIO, to be accessible to all appropriate SNF staff to

ensure that valuable and necessary information is transferred to the SNF. CORHIO is a statewide HIE and so is limited to patients who seek care within Colorado. Future policy efforts should aim at creating a nationwide HIE so that medical records can be available across state lines. HIEs offer an opportunity to ensure that medical staff have full and complete information as patients transition between levels of care.

Future Research

As described in the Discussion chapter (Chapter 7), this research had several limitations, suggesting future research to fill those gaps. This section will outline recommendations for future research based on this study.

A limitation of this quantitative research was that the small sample size precluded the ability to delve into differences in plan types or specific MA plan providers and their effects on the risk for rehospitalization. Future research may benefit from a larger sample so that MA plans can be further divided into categories of insurance type (e.g. Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), Private Fee-for-Service Plans (PFFSs), and Point of Service (POS) plans) or even by insurance organization (e.g. Kaiser Permanente, UnitedHealthcare, Cigna, Aetna, etc.). For example, the qualitative interviews indicated that Kaiser Permanente uses more intense case management and more on-site care providers compared to other insurers who monitor the care of their patients remotely (e.g. via updates from faxes and phone calls from SNFs). Though, despite this intensity, a few SNF interviewees indicated that they felt Kaiser Permanente had the highest rates of rehospitalizations among MA patients. These insights from the qualitative interviews indicate that it might be useful to distinguish among MA plans and their specific patient

management practices and mechanisms of control. Another limitation related to the sample for this research, is the nature of the Denver metropolitan SNF and MA market, which may differ from that in other cities and regions around the country. Future research should replicate this study in different markets and on a larger scale.

This research was conducted prior to the implementation of the financial penalties under PAMA's SNF-VBP. The quantitative and the qualitative data were collected prior to October 2018 when the penalties were implemented. Previous literature indicates that a SNFs' rehospitalization rate has an effect on a patient's risk for rehospitalization (Rahman et al, 2016). Future research should analyze whether receiving care in a SNF that was penalized for rehospitalization in the first year of the SNF-VBP predicts patients' risk for rehospitalization 30 days post-hospital admission to a SNF. It would also be interesting to examine rates of penalties over a longitudinal period to determine if the penalties had an overall effect on reducing patients' risk for rehospitalization from a SNF over time. The results of such an analysis would be key for determining the effectiveness of financially penalizing SNFs for rehospitalizations.

The qualitative portion of the study was novel in that the interviews were conducted prior to the implementation of the financial penalties under PAMA's SNF-VBP program. This timing provided an opportunity to gain valuable insight into perceptions of how the penalties may or may not influence a SNF's level of care in reducing rehospitalizations. Future research should use the results of this qualitative research to determine the relationship between the perceived preparedness for the then impending penalties and the actual rates of rehospitalization and penalties. Specifically, SNF staff were asked during the

qualitative interviews what they thought of the penalties and how they anticipated the penalties would affect their SNF and SNFs in general. Now that the rates of rehospitalization are publicly available on the Nursing Home Compare website under the quality of resident care star rating and whether a SNF received a penalty as of October 2018, there is an opportunity to compare perceived preparedness of SNFs for the penalties and the actual effects of the penalties on those SNFs. Another opportunity for future research lies in the qualitative analysis of the perspectives of SNF staff on how the newly implemented penalties have affected their SNF financially and if and how the penalties will shape efforts to reduce their rehospitalizations. With the high turnover rates in the Denver metropolitan SNF marketplace and the difficulty that came with recruiting for this current study, it is unlikely that I could reach out to the same interviewees from each SNF for a follow-up interview. However, even if a few of the previous interviewees used in this research were open to a follow-up interview, it could provide important information related to SNF staffs' perspective of how the SNF-VBP has affected their facility and the Denver SNF market in general.

This research demonstrates that certain SNF characteristics may also affect patients' risk for rehospitalization. Patients who received care from a SNF with more MA plans, a higher health inspection star rating, and a lower quality of resident care star rating were at lower risk for rehospitalization from a SNF within 30 days of their admission. As described earlier, the mechanisms of control used by MA plans may have an effect on reducing the risk for rehospitalization for patients within a SNF. The more plans a SNF contracted with, the lower the risk for rehospitalization of their patients. This may be because SNFs with more

MA plans will likely care for fewer FFS beneficiaries and have a larger case-mix of MA members versus FFS beneficiaries. Therefore, those SNFs have a larger share of patients who are getting additional oversight on their care and thus a reduced risk for rehospitalization for their patients overall. With fewer FFS beneficiaries served, those specific SNFs most likely have a reduced rehospitalization rate. Future research should examine this finding further by looking at the proportion of FFS beneficiaries served versus MA members served as a covariate for the analysis of risk for rehospitalization. This information was not available for this research (this research used the proportion of Medicare beneficiaries served), but would be a valuable covariate to include in future research.

Patients who received care from a SNF with a lower quality of resident care star rating were at lower risk for rehospitalization in this research. To the best of my knowledge, no previous literature has found a significant correlation between the quality of resident care star rating and risk for rehospitalization, not to mention the inverse relationship between the quality of resident care star rating and risk for rehospitalization (as compared to the health inspection star rating finding). As previously described, rehospitalization rates for SNFs were not included in the quality of resident care star rating until July 2016. In addition, rehospitalization rates were not posted publicly on the Nursing Home Compare website for quality of resident care until October 2018 under the SNF-Quality Reporting Program (SNF-QRP). Therefore, future research should determine if the incorporation of the rates of rehospitalization into the calculation of the quality of resident care star rating and the public posting of a SNF's rehospitalization rates have an effect on reducing SNFs' overall rates of rehospitalization. It is hypothesized, using the Multitasking Theory as a guide, that by adding

the metric of rehospitalization rates to the quality of resident care star rating, that SNFs will likely increase their efforts aimed at curtailing the readmission rates (in addition to the financial penalties under SNF-VBP).

Conclusion

In conclusion, this research aimed to fill a gap in the literature using mixed methods to determine whether or not the type of insurance (FFS vs. MA) a patient with heart failure has while receiving care in a SNF affects their risk for rehospitalization within 30-days post-hospital discharge to a SNF. While not significant, the results of this research point to FFS beneficiaries being at a greater risk for rehospitalization compared to their MA counterparts as indicated in previous literature (AHIP, 2009a, 2009b, 2009c, 2010b; 2010c; Anderson, 2009; Basu et al., 2007; Cohen et al., 2012; Huckfeldt et al., 2017; Kumar et al., 2018; Lemieux et al., 2012; Li et al., 2018; Zeng et al., 2006). This is in contrast to the perception of SNF interviewees that MA members are at increased risk for rehospitalization because of their reduced length of SNF stay. The mechanisms of control used on the part of MA plans as described by the qualitative interviews (i.e. intensive case management) may reduce the risk for rehospitalization among their members by providing a “second set of eyes” on patients. In addition, patients who had a shorter length of SNF stay or who previously had two or more hospitalizations in the 12 months prior to their SNF admission were at a greater risk for rehospitalization from a SNF. Lastly, the quantitative results indicated that SNFs that contracted with more MA plans, had a higher health inspection star rating and a lower quality of resident care star rating were at less of a risk for rehospitalization. Qualitative interviews with 23 staff members from 11 Denver metropolitan SNFs provided their perspectives on the

influence of MA plans over the care of patients within a SNF and how those mechanisms may affect patient outcomes. Interviewees were also asked to detail their perspectives of how the penalties under the SNF-VBP might affect their SNF and SNFs in general. This research contributes to our understanding of how insurance type may influence the risk for rehospitalization by providing a mixed methodological perspective and directs future policies and research.

APPENDIX A: QUANTITATIVE ANALYTIC PLAN

- 1) *Do the personal characteristics of SNF patients with heart failure with MA coverage differ from SNF patients with heart failure enrolled in FFS Medicare?*

Measurement

- Dependent variable:
 - Type of insurance (dichotomous variable -- FFS=0, MA=1)
- Independent variables:
 - Overall Health :
 - CCI Score (continuous variable)
 - Number of hospital admissions in previous 12 months (categorical variable --0, 1, 2+--for descriptives/bivariate analyses; series of dichotomous variables--0 (reference), 1, 2+ --for regressions).
 - Number of emergency room visits in previous 12 months (categorical variable--0, 1, 2+-- for descriptives/bivariate analyses; series of dichotomous variables -- 0 (reference), 1, 2+-- for regressions)
 - Type of heart failure (dichotomous variable – HFpEF=0, HFrEF=1)
 - Length of SNF stay (continuous variable)
- Covariates:
 - Demographic characteristics
 - Age (continuous variable)
 - Gender (dichotomous variable -- Male=0, Female=1)
 - Race/ethnicity (dichotomous variable – White, Non-Hispanic=0, Non-White=1)
 - Education (continuous variable)
 - Care trajectory 30 days post-hospital discharge to a SNF
 - Hospital to SNF (dichotomous variable – No=0, Yes=1)
 - Hospital to SNF to home (dichotomous variable – No=0, Yes=1)
 - Hospital to SNF to home to the hospital (dichotomous variable – No=0, Yes=1)
 - Hospital to SNF to the hospital (dichotomous variable – No=0, Yes=1)
 - Facility characteristics
 - Number of Medicare-Medicaid certified beds (continuous)
 - Case mix acuity (continuous)
 - Proportion of Medicare beneficiaries served (continuous)
 - Number of contracted MA plans (continuous)
 - Overall star rating (continuous)
 - Health inspection star rating (continuous)

- Staffing star rating (continuous)
- Quality of resident care star rating (continuous)

Analytical approach

- Basic descriptive statistics for type of insurance and patient characteristics: percentage, count, mean, median, standard deviation, minimum, maximum
- Crosstabs/Pearson Chi-square tests (bivariate analyses): To compare the relationship between insurance type and the independent variables (number of hospital admissions in previous 12 months, number of emergency room visits in previous 12 months, type of heart failure, care trajectory) and covariates (gender, race/ethnicity)
- T-tests/Spearman Rank Correlations (bivariate analyses): To examine the relationship between MA versus FFS enrollment and continuous control variables such as age, education, CCI score, length of SNF stay, number of Medicare-Medicaid certified beds, case mix acuity, proportion of Medicare beneficiaries served, number of contracted MA plans, overall star rating, health inspection star rating, staffing star rating, and quality of resident care star rating.
- Hierarchical General Estimating Equations (GEE): To examine the odds of MA versus FFS enrollment associated with CCI, number of hospital admissions in the previous 12 months, number of emergency room visits in the previous 12 months, type of heart failure, length of SNF stay, and care trajectory, controlling for other patient characteristics (age, gender, race/ethnicity, education) and SNF-level characteristics (number of Medicare-Medicaid certified beds, patient case mix acuity, proportion of Medicare beneficiaries, number of contracted MA plans and star rating), accounting for nesting within 29 different SNFs.

- Equation:

$$\text{Logit (Insurance Type}_{ij}) = \beta_0 + \beta_1 \text{CCI}_i + \beta_2 \text{Number of Hospital Admissions in Previous 12 Months}_i + \beta_3 \text{Number of Emergency Room Visits in the Previous 12 Months}_i + \beta_4 \text{Type of Heart Failure}_i + \beta_5 \text{Length of SNF Stay}_i + \beta_6 \text{Age}_i + \beta_7 \text{Gender}_i + \beta_8 \text{Race/Ethnicity}_i + \beta_9 \text{Education}_i + \beta_{10} \text{Number of Medicare-Medicaid beds} + \beta_{11} \text{Patient Case Mix Acuity} + \beta_{12} \text{Proportion of Medicare Beneficiaries} + \beta_{13} \text{Number of Contracted MA Plans} + \beta_{14} \text{Star Rating}$$

The above equation is a general estimating equation – hierarchical model that accounts for clustering of observations across facilities. Where $i=1, \dots, n_j$ denotes individual characteristics of patients with heart failure in SNF and $j=1, \dots, n$ denotes SNF characteristics.

- 2) *Do SNF patients with heart failure with MA coverage have lower rates of rehospitalization 30 days post-hospital discharge to a SNF compared to SNF patients with heart failure enrolled in FFS Medicare?*

Measurement

- Dependent variable:
 - Rehospitalization within 30 days post-hospital discharge to a SNF (dichotomous variable -- No=0, Yes=1)
- Independent variable:
 - Type of insurance (dichotomous variable -- FFS=0, MA=1)

Analytical approach

- Basic descriptives of rehospitalizations and type of insurance: Count, percentage.
- Crosstabs/Pearson Chi-square (bivariate analyses): To compare the relationship between insurance type and rehospitalization within 30 days post-hospital discharge to a SNF.
 - Equation

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

Where χ^2 represents rehospitalization, f_e represents the null hypothesis that there is no difference between risk of rehospitalization and insurance type and f_o is the observed difference between risk of rehospitalization and insurance type.

- 3) *Do SNF patients with heart failure with MA coverage have a lower likelihood of rehospitalization compared to SNF patients with heart failure enrolled in FFS Medicare, after adjusting for and matching individual-level and facility-level factors?*

Measurement

- Dependent variable:
 - Rehospitalization within 30 days post-hospital discharge to a SNF (dichotomous variable -- No=0, Yes=1).
- Independent variable:
 - Type of insurance (dichotomous variable -- FFS=0, MA=1)
- Covariates:
 - Demographic characteristics
 - Age (continuous variable)
 - Gender (dichotomous variable -- No=0, Yes=1)
 - Race/ethnicity (dichotomous variable – White, non-Hispanic=0, Non-White=1)
 - Education (continuous variable)
 - Overall Health :
 - CCI Score (continuous)
 - Number of hospital admissions in previous 12 months

(categorical variable --0, 1, 2+--for descriptives/bivariate analyses; series of dichotomous variables--0 (reference), 1, 2+ --for regressions).

- Number of emergency room visits in previous 12 months (categorical variable--0, 1, 2+-- for descriptives/bivariate analyses; series of dichotomous variables -- 0 (reference), 1, 2+-- for regressions)
- Type of heart failure (dichotomous variable; HFpEF=0, HFrEF=1)
- Length of SNF stay (continuous variable)
- Reason for rehospitalization (categorical variable --0, 1, 2)
- Facility characteristics
 - Number of Medicare-Medicaid certified beds (continuous)
 - Case mix acuity (continuous)
 - Proportion of Medicare beneficiaries served (continuous)
 - Number of contracted MA plans (continuous)
 - Overall star rating (continuous)
 - Health inspection star rating (continuous)
 - Staffing star rating (continuous)
 - Quality of resident care star rating (continuous)

Analytical approach

- Basic descriptive statistics for dependent variable (rehospitalization within 30 days post-hospital discharge to a SNF), independent variable (type of insurance), and covariates (reason for rehospitalization, age, gender, race/ethnicity, education, CCI, number of hospital admissions in previous 12 months, number of emergency room visits in previous 12 months, type of heart failure, length of SNF stay, number of Medicare-Medicaid beds, case mix acuity, proportion of Medicare beneficiaries served, number of contracted MA plans, overall star rating, health inspection star rating, staffing star rating, quality of resident care star rating): Count, percentage, mean, median, standard deviation, minimum, maximum, frequency
- Crosstabs/Pearson Chi-square tests (bivariate analyses): To compare the relationship between rehospitalization within 30 days post-hospital discharge to a SNF with the independent variable (type of insurance) and control variables (gender, race/ethnicity, number of hospital admissions in previous 12 months, number of emergency room visits in previous 12 months, type of heart failure).
- T-tests/Spearman Rank Correlations (bivariate analyses): To examine the relationship between rehospitalization within 30 days post-hospital discharge to a SNF and continuous control variables such as age, education, CCI score, length of SNF stay, number of Medicare-Medicaid certified beds, case mix acuity, proportion of Medicare beneficiaries served, number of contracted MA plans, overall star rating, health inspection star rating, staffing star rating, and quality of resident care star rating.

- Hierarchical General Estimating Equations (GEE): To examine the odds of rehospitalization with type of insurance (MA v. FFS), accounting for nesting of observations with SNFs, and controlling for covariates (age, gender, race/ethnicity, education, CCI, number of hospital admissions in previous 12 months, number of emergency room visits in previous 12 months, type of heart failure, length of SNF stay, number of Medicare-Medicaid certified beds, proportion of Medicare beneficiaries served, case mix acuity, number of contracted MA plans, star rating (either overall star rating or health inspection, staffing and quality of resident care star rating)).

- Equation:

$$\text{Logit (rehospitalization}_{ij}) = \beta_0 + \beta_1 \text{Insurance Type}_i + \beta_2 \text{Age}_i + \beta_3 \text{Gender}_i + \beta_4 \text{Race/Ethnicity}_i + \beta_5 \text{Education}_i + \beta_6 \text{CCI}_i + \beta_7 \text{Number of Hospital Admissions in Previous 12 Months}_i + \beta_8 \text{Number of Emergency Room Visits in Previous 12 Months}_i + \beta_9 \text{Type of Heart Failure}_i + \beta_{10} \text{Length of SNF Stay}_i + \beta_{11j} \text{Number of Medicare-Medicaid Certified Beds}_{ij} + \beta_{12j} \text{Proportion of Medicare Beneficiaries Served}_{ij} + \beta_{13j} \text{Case Mix Acuity}_{ij} + \beta_{14j} \text{Number of Contracted MA Plans}_{ij} + \beta_{15j} \text{Star Rating}_{ij}$$

The above equation is a general estimating equation – hierarchical model that accounts for clustering of observations across facilities. Where $i=1, \dots, n_j$ denotes individual characteristics of patients with heart failure in SNF and $j=1, \dots, n$ denotes SNF characteristics.

- Propensity Score Matching (PSM): To examine the odds of rehospitalization with type of insurance (MA v. FFS), controlling for covariates (age, gender, race/ethnicity, education, CCI, number of hospital admissions in previous 12 months, number of emergency room visits in previous 12 months, type of heart failure, length of SNF stay, number of Medicare-Medicaid certified beds, proportion of Medicare beneficiaries served, case mix acuity, number of contracted MA plans, star rating (either overall star rating or health inspection, staffing and quality of resident care star rating) with a matched comparison of patients with MA and FFS within the 29 SNFs.

- Equation:

$$P(X) = \Pr(d=1 | X)$$

The above equation was used to compare the results with the GEE model, which also accounts for clustering of observations across facilities. The above equation indicates that PSM was used to match on the probability of selection into an MA plan across the 29 SNFs where d =MA plan coverage and X indicates the various patient- (age, gender, race/ethnicity, education, CCI, number of hospital admissions in previous 12 months, number of emergency room visits in previous 12 months, type of heart failure, length of SNF stay) and SNF-level (number of Medicare-Medicaid certified beds, proportion of Medicare beneficiaries served, case mix acuity, number of contracted MA plans,

star rating (either overall star rating or health inspection, staffing and quality of resident care star rating)) selection factors.

APPENDIX B: EMAIL TO ADMINISTRATORS AND DIRECTORS OF NURSING AT
SELECTED SNFS

Dear _____,

My name is Andrea Daddato and I am a Professional Research Assistant at the University of Colorado - Division of Geriatric Medicine working with Dr. Rebecca Boxer on the SNF Connect study, to which your facility has been a valuable contributor. The purpose of the SNF Connect study is to further heart failure research in the skilled nursing facility (SNF) environment.

As part of our research, I will be conducting semi-structured interviews with key staff members of local SNFs. The goal of the interviews is to provide the perspective of those individuals who work in SNFs on if and how insurance influences a patient's overall care and potential risk for rehospitalization. Information gathered from the semi-structured interviews will provide invaluable information regarding the relationship between insurance type and risk of rehospitalizations.

At this time, I would like to request, at your convenience, the opportunity to schedule an interview with you. The interviews are semi-structured and are anticipated to last no more than an hour. Your personal identity and the identity of your SNF will be kept confidential. The interview will be recorded by myself for later transcription and analysis.

I thank you for your time and look forward to speaking with you to set up a date and time for the interview. I can be reached either via email at Andrea.Daddato@ucdenver.edu or via phone at 720-737-6700.

Sincerely,

Andrea Daddato

APPENDIX C: IRB APPROVED INTERVIEW GUIDE

Key Informant Interview Protocol Protocol 18-0209 v.5.2.18

Thank you for agreeing to speak with me today. The primary focus of this interview is on how the type of insurance (Traditional Fee-for-Service (FFS) versus Medicare Advantage (MA)) may influence patients' risk of rehospitalization within 30 days of admission to a SNF. In particular, I am specifically focused on post-acute patients who are receiving skilled therapy in the SNF setting paid for by Medicare.

To start out, please tell me...

Interviewee

- How would you describe your current position, role, responsibilities and activities?
- How long you have been in your current position?
- Please describe your training and background and how you came to your current role at this facility.

Background

Thank you very much. Next, I would like to discuss the SNF marketplace in the Denver metropolitan area and how you get referrals to your SNF to maintain your census.

- Please describe this facility in terms of the care provided (e.g. long-term care, post-acute care, specialized units such as memory care).
 - i. Do you have a target for the proportion of beds in each category?
- In general, how would you describe the SNF marketplace in the Denver-metropolitan area?
 - i. How competitive is the SNF marketplace?
 - ii. Has the SNF marketplace changed since you have been in this position or during your time in the field?
- What are your main strategies for attracting Medicare business?
 - i. For example: developing relationships with hospitals? Marketing to potential patients? Marketing to other partners? Developing relationships with insurance plans? Other?

- ii. Which of these do you spend the most time/energy on?
- Is your SNF part of an ACO or a bundled payment plan?

Insurance

Now I would like to talk about your relationship with Medicare Advantage (MA) plans and how they may or may not affect your facility's behavior.

- You contract with X number of MA plans, correct?
 - i. In general,
 - How much of your revenue for skilled services comes from MA plans versus FFS?
 - How much of your volume of skilled patients comes from MA plans versus FFS?
 - ii. You contract with X, X, X... MA insurance companies, correct?
 - What proportion of your business does each MA plan provide? Is there one MA plan that insures most of your patients?
- How did you enter into your relationship with the MA plans you contract with?
 - i. How do MA plans go about determining whether or not to contract with you?
 - ii. Why did you decide to work with certain plans?
 - iii. Were there any plans you did not want to work with? If so, why?
 - iv. What are the primary issues that arise in contracting with an MA plan?
- Are there certain requirements set by the MA plans you contract with in terms of care provisions for patients, utilization review, etc.? If yes, please list them (go into more depth with each mechanism one at a time after they list them).
 - What does the method look like?
 - What does it entail?
 - How does this work in practice?
 - i. Are your staff able to implement this as intended?
 - Are any of the methods or mechanisms focused on preventing rehospitalizations, in particular?

(If there are any of the below mechanisms that aren't mentioned, probe them for each)

 - What types of **financial incentives**, if any, do MA plans use and how are these used? Do you think the

financial incentives work as intended? Why or why not?

- Do any of the MA plans use **utilization review or management**? If so, please explain.
 - What form of utilization review do they do (e.g. tracking various services (e.g. ancillary therapies – PT, OT, etc.))?
 - Do you think the utilization review works as intended? Why or why not?
 - Is the utilization review ever focused on preventing rehospitalizations?
- Do any of the MA plans use **case management**? If so, please explain.
 - What form of case management do they do?
 - Do you think the case management works as intended? Why or why not?
- Do any of the MA plans use **selective contracting** (e.g. in-network contracting)? If so, please explain.
 - Are there specific doctors, laboratories or outside service providers that you must use for each MA plan? If yes, please explain.
- How do the MA plans determine whether or not you are meeting these requirements?
- Do you feel you are on an equal footing in negotiating with the MA plans? If no, who has the upper hand – you or the MA plan? Please explain.
 - i. How much influence does an MA plan have in how care is provided? In what ways?
- How do you decide when a patient is ready to be discharged from post-acute care for MA beneficiaries?
 - i. Is it your decision or the MA plan's?
 - ii. Is it based on progress with therapy?
- Do you ever feel pressured by insurance companies to discharge patients earlier than you would like?
 - i. If you do feel pressured by insurance companies to discharge patients earlier than you would like, do you believe this may influence a patient's risk of rehospitalization?

For those who are part of an ACO or bundle - do the ACO and the MA plans require different types of care, oversight, etc.?

Penalties for Rehospitalizations

CMS, under the Protecting Access to Medicare Act (PAMA) will begin penalizing SNFs for potentially avoidable rehospitalizations of FFS patients within 30 days post hospital discharge (including patients with heart failure).

- Are you aware of these changes?
 - i. If yes, what do you think about the changes?
 - ii. What changes, if any has your facility made in response to the upcoming penalties?
 - iii. How do you think these new changes are going to impact your SNF? Impact SNFs in general?
 - iv. The SNF Value-based Purchasing Program (VBP) (also known as PAMA) will only be penalizing SNFs for FFS readmissions. Do you think this means that SNFs will try to increase their MA business to avoid those FFS penalties?
 - v. (If no) Under PAMA, SNFs with high rates of all-cause rehospitalizations will see financial penalties beginning in October 2018 under what is called the Skilled Nursing Facility Value-based Purchasing Program (SNF VBP). Beginning on October 1st, 2018 under the SNF VBP, all SNFs will have a 2% reduced payment of which CMS will then redistribute back to SNFs based on their performance score.
 - What do you think about the changes?
 - How do you think these changes are going to impact your SNF? Impact SNFs in general?
 - Do you think that SNFs will change their behaviors in terms of sending patients back to the hospital? (e.g. keeping patients longer)
 - PAMA will only be penalizing SNFs for FFS readmissions. What are your thoughts on the fact that readmissions for MA beneficiaries will not be included in these penalties? (e.g. will SNFs try to provide more care to MA beneficiaries instead of FFS?)

Heart Failure

Heart failure is listed as one of the primary diagnoses of potentially preventable rehospitalizations. Therefore, I'm interested in learning how patients with heart failure are served in facilities.

- i. What is your facility doing to better serve this population?
- ii. What do you see as the biggest challenges in providing care to patients with heart failure in SNFs?
- iii. Does your facility or any of the hospitals who refer to you have special programs or processes in place to improve the transition from hospital to SNF for patients with heart failure?
- iv. Have the insurance plans you contract with had an influence on how you serve this population and if so, how?

Beyond what we have discussed, do you feel that there is anything else that might help me to understand the relationship between insurance type and risk of rehospitalizations? Are there any specific documents developed by MA plans that you contract with that outline protocols for patient care, rehospitalizations, etc.? If so, would you be able to share those with me? Are there any other pertinent documents you could share with me? All information will be deidentified from the documents.

Thank you so much for taking the time to meet with me and to help to better inform my research. I know how valuable your time is and I truly appreciate it.

APPENDIX D: IRB APPROVED POST-CARD CONSENT FORM

Principal Investigator: Andrea Daddato, MS MS

COMIRB No: 18-0209

Version Date: v 01_28_18

Study Title: The Influence of Medicare Insurance Type - Traditional Fee-For-Service v. Medicare Advantage - on Rehospitalizations for Patients with Heart Failure in Skilled Nursing Facilities

You are being asked to be in a research study. This form provides you with information about the study. A member of the research team will describe this study to you and answer all of your questions. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part.

Why is this study being done?

This study plans to learn more about *how the type of Medicare coverage – Fee-for-Service vs. Medicare Advantage – of patients with heart failure in skilled nursing facilities influences their skilled nursing care and in particular, their risk of rehospitalization?* The goal of the interview is to provide the perspective of those individuals who work in a skilled nursing facility setting on how insurance influences a patient's overall care and potential risk for rehospitalization.

You are being asked to be in this research study because you are currently an employee at a skilled nursing facility.

Up to 30 people will participate in the study.

What happens if I join this study?

If you join the study, you will be interviewed by one of the research team members. The team member will take notes during the interview and will ask your permission to audio record the conversation.

The interview is not anticipated to last more than an hour.

What are the possible discomforts or risks?

Discomforts you may experience while in this study include questions that you may not know the answer to or may prefer not to answer. You are allowed to skip any questions you do not feel comfortable answering.

Other possible risks include the potential loss of confidentiality. Every effort will be made to protect your privacy and confidentiality by keeping all papers in secure drawers and by keeping the electronic data in secure servers at the University of Colorado Denver | Anschutz Medical Campus. We are not collecting your name, your co-workers' names, or the name of your facility where you work. Should you mention any of these, we will not record in the transcription of the audio recording. After the audio recording is transcribed, we delete the digital recording.

What are the possible benefits of the study?

This study is designed for the researcher to learn more about how insurance type may or may not influence a skilled nursing facility patient's overall care and their risk for rehospitalization.

The results from the research may be shared at a meeting. The results from the research may be in published articles. Your name will be kept private when information is presented.

Will I be paid for being in the study? Will I have to pay for anything?

You will not be paid to be in the study.

It will not cost you anything to be in the study.

Is my participation voluntary?

Taking part in this study is voluntary. You have the right to choose not to take part in this study. If you choose to take part, you have the right to stop at any time. If you refuse or decide to withdraw later, you will not lose any benefits or rights to which you are entitled.

Who do I call if I have questions?

The researcher carrying out this study is Andrea Daddato. You may ask any questions you have now. If you have questions later, you may call Andrea Daddato at 720-737-6700.

You may also call Rebecca Boxer, MD who is the Faculty Mentor for this research at 303-724-1922.

You may have questions about your rights as someone in this study. You can call Andrea Daddato with questions. You can also call the Multiple Institutional Review Board (IRB). You can call them at 303-724-1055.

APPENDIX E: FINAL QUALITATIVE CODEBOOK

Theme	Categories	Related Codes – Level 1	Related Codes – Level 2
The SNF Marketplace in Denver, Colorado	The Denver SNF Marketplace is Highly Competitive	Oversaturation of the SNF Marketplace in Denver	Colorado Does Not Have a Certificate of Need Law
			New SNFs Built Ahead of Demand
			New SNFs are Stand-alone Facilities That Only Provide Post-acute Care and Rehabilitation
			Stand-alone SNFs and LTC Facilities Compete with One Another for Referrals
		Decreased Need for Post-acute Care and Rehabilitation in a SNF Setting	Patients Receiving Post-acute Care and Rehabilitation at Home with Home Health Compared to In a SNF Setting
			Patients In Need of Post-Acute Care and Rehabilitation in SNFs Are More Acute
	Changes over Time in the Denver SNF Marketplace	Skilled Rehabilitation Population is Sicker than in the Past	
		Increase in the Enrollment of Medicare Beneficiaries into MA Plans	
		Patients are Experiencing Shorter Lengths of Stay in Both Hospitals and SNFs	
		Increase in Staffing Shortages in the SNF Workforce	
	Methods SNFs Use to Attract Business	Most SNFs Use Clinical Liaisons for Attracting Patients to their Facility	Liaisons Act As Marketers For the SNF
			Liaisons Determine Goodness of Fit of Patients For the SNF
		SNFs Strive to Become Preferred Providers with Hospitals and	SNFs Strive to Become Preferred Providers with Hospitals for Referrals

Theme	Categories	Related Codes – Level 1	Related Codes – Level 2
		Bundled Payment Plans/Accountable Care Organizations for Referrals	SNFs Strive to Become Part of Bundled Payment Plans and ACOs for Referrals
		LTC Facilities Create Niches and Specializations to Remain Competitive Against Stand-alone SNFs in the Denver SNF Marketplace	
		The Decision of Where to Receive Post-acute Care and Skilled Rehabilitation in a SNF is Up to the Patient	Patients Use the Internet to Search for a SNF
			Family Members Help Patients Select a SNF
			The Physical Appearance of a SNF Matters in Patient Selection of Where to Receive Care
			The Location of the SNF Relative to Their Home or Their Family Matters to Patients
			Patients Select a SNF Based on the Reputation of the SNF or Word of Mouth
SNFs Relationships with Medicare Advantage Plans	SNF and MA Plan Contracting	Purpose for Obtaining MA Plan Contracts	SNFs Contract with MA Plans to Supplement Their Medicare FFS Business and to Fill Their Census
			MA Referrals Supplement for Seasonal Dips When SNFs Have Few Referrals
		How Contracts Form Between MA Plans and SNFs	
		Contracts with Kaiser Permanente Are Highly Sought After	

Theme	Categories	Related Codes – Level 1	Related Codes – Level 2
	Mechanisms Used by MA Plans to Influence SNFs' Care of Their Members	MA Plan Mechanism: Case Management	MA Plan Case Management Requirements
			Frustration with MA Plan Case Management
			Communication between SNF Staff and with MA Plan Case Managers is Critical to MA Plan Case Management
		MA Plan Mechanism: Pre-authorizations and Utilization Review Requirements Prior to SNF Admission	
		MA Plan Mechanism: Selective Contracting with Ancillary Service Providers	
		MA Plan Mechanism: Determine Their Members' Lengths of SNF Stay	
		MA Plan Mechanism: Determine Their Members' Discharge Dates	The Social Situation for the Patient at Home is Not Taken into Account by MA Plans
			Early Discharge Dates for MA Members from SNFs Put the Patients at Risk for Rehospitalization
			MA Members Can Make an Appeal to Their MA Plan About Their Discharge Date
		MA Plan Mechanism: MA Plans Do Not Financially Incentivize SNFs, but Rather Provide More Referrals, Renew Their Contract or Increase Their Reimbursement	

Theme	Categories	Related Codes – Level 1	Related Codes – Level 2
		Rate if SNFs Provide Quality Care to Their Members	
Preference for FFS Beneficiaries over MA Beneficiaries	FFS Reimbursement Rate is Greater Than MA Plans' Reimbursement Rate		
	Easier to Admit FFS Beneficiaries Compared to MA Members		
	SNFs Have More Control Over FFS Beneficiaries' Care Compared to MA Members		
	Difference in Treatment of Patients Based on Insurance Type		
SNF Value-Based Purchasing Program (SNF-VBP) – Protecting Access to Medicare Act (PAMA)	SNF Staff Members' Thoughts about Potential Penalties Under SNF-VBP	Some SNF Staff Members See Penalties Under SNF-VBP as Fair	SNF-VBP Penalties Will Hold SNFs Accountable for the Care They Provide
			SNF-VBP Penalties May Lead to Better Clinical Outcomes
			SNF-VBP Penalties May Reduce Fraud
		Most SNF Staff Members See Penalties Under SNF-VBP As Unfair	Efforts to Avoid Penalties Under SNF-VBP May be Burdensome and Time-consuming to SNFs

Theme	Categories	Related Codes – Level 1	Related Codes – Level 2
			Penalties Under SNF-VBP May Lead to Decreased Quality of Care in SNFs
			Some Rehospitalizations from SNFs Are Unavoidable
	Effects of SNF-VBP on SNFs in Denver	Effects of SNF-VBP for Interviewees' SNFs	
		Effects of SNF-VBP for SNFs in General	SNF-VBP Penalties May Create Strained Relationships with Hospitals and Lead to a Decrease in Referrals
			SNFs May Be More Selective in the Patients They Admit to Their Facility to Avoid Penalties Under SNF-VBP
			SNFs May Keep Patients in the SNF Longer to Avoid Rehospitalizations and Penalties Under SNF-VBP
			Penalties Under SNF-VBP Have the Potential to Weed Out Poor-performing SNFs
	Adaptations by SNFs In Response to Potential Future Penalties Under SNF-VBP	SNFs Focus on Quality Improvement Measures to Avoid Penalties Under SNF-VBP	
		SNFs Seek to Foster Good Communication With Providers to Reduce Risk of Rehospitalizations and Penalties	
		SNFs form Partnerships with Home Health Care Agencies	
		SNFs Follow-up With Patients Once They Leave the Facility	

Theme	Categories	Related Codes – Level 1	Related Codes – Level 2
Heart Failure		SNFs Can Directly Readmit Patients to the SNF to Avoid Rehospitalizations and Penalties	
		A Few SNFs Have Not Made Any Changes in Anticipation of Upcoming Penalties Under SNF-VBP	
	Challenges in Caring for Patients with Heart Failure	Patients with Heart Failure Often Have Multiple Comorbidities	
		Patients with Heart Failure are Often Medically Unstable	
		Difficult to Provide Care to Patients with Heart Failure When They Make Poor Health Care Choices	
	SNFs' Care of Patients with Heart Failure	Some SNFs Have Specific Heart Failure Guidelines and Interventions in Place	
		SNFs Provide Education to Patients with Heart Failure and Front-line Staff	
		Coordination of Care for Patients with Heart Failure Within and Outside the SNF	
	Transition of Care from the Hospital to SNF Can Result in Poor Outcomes for Patients with Heart Failure		

Theme	Categories	Related Codes – Level 1	Related Codes – Level 2
	MA Plans Do Not Seek to Influence How Their Members with Heart Failure are Care For		

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