2018

Patient Experience and Readmissions Among Medicare Shared Savings Programs Accountable Care Organizations

Benjamin Michael Anderson
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Benjamin Anderson

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. James Goes, Committee Chairperson, Health Sciences Faculty
Dr. James Rohrer, Committee Member, Health Sciences Faculty
Dr. Robert Hijazi, University Reviewer, Health Sciences Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2018

Abstract

Patient Experience and Readmissions Among Medicare Shared Savings Program Accountable Care Organizations

by

Benjamin Anderson

MBA, Columbia Southern University, 2014

BS, Viterbo University, 2010

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor in Healthcare Administration

Walden University

August 2018

Abstract

In 2011, Medicare patients represented the largest share of total readmissions and health costs when compared to all other patient categories. Because patient-centered care drives the use of health services, the U.S. Patient Protection and Affordable Care Act outlined improving the patient experience to reduce readmission rates; however, the relationship between patient experience and readmissions is not well understood. Grounded in systems theory, the purpose of this correlational study was to determine if the relationship between patient experience and readmission rates in Medicare Shared Savings Program accountable care organizations. Data from the Consumer Assessment of Healthcare Providers and Systems survey were gathered from the Centers for Medicare and Medicaid datasets to analyze patient experience measurements and readmission rates, while accounting for variation among Medicare service regions, number of assigned beneficiaries, and performance year. Using multiple linear regression to analyze the data, the model was used to predict Medicare's all-condition readmission rate (per 1000), R^2= .242, F (13, 634) 15.59, $p < .001$. The research question was answered partially; variation in the patient experience domain did not support all hypotheses. Because the Medicare population represents the fastest growing patient population within the U.S. health care system, continuous evaluation of policy and performance provides an evidence-based analysis to health administrators and providers who have pivotal roles in the creation of positive social change. Findings may be used to improve quality and service while reducing costs, which contributes to the sustainability of the U.S. Medicare program and its beneficiary population.

Patient Experience and Readmissions Among Medicare Shared Savings Program Accountable Care Organizations

by

Benjamin Anderson

Masters of Business Administration, Columbia Southern University, 2014

Bachelor of Science in Biology, Viterbo University, 2010

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor in Healthcare Administration

Walden University

August 2018

Acknowledgements

I would like to express my sincere gratitude to my committee chair, Dr. Jim Goes, for his honesty, patience, and feedback he gave me throughout my doctoral journey. In addition, I want to acknowledge my committee member, Dr. Jim Rohrer, for his quick responses, availability, and support. Both individuals provided invaluable mentorship that contributed to my academic and professional growth.

Table of Contents

List of Tables

List of Figures

Section 1: Foundation of the Study and Literature Review

On March 30, 2010, the US Patient Protection and Affordable Care Act (ACA), was signed into law to improve integration and reduce wasteful spending in the health care system (Davis, Hahn, Morgan, Stone, & Tilson, 2010). Because growth in Medicare spending was recognized to be one the greatest drivers behind federal debt, Medicare Shared Savings Program accountable care organizations (MSSP ACOs) were created (Song, 2014). In this new patient-centered model, MSSP ACOs are founded on the Institute for Health Improvement's (IHI) Triple Aim philosophy, with standardized goals of improving the *patient experience*, reducing the cost of healthcare, and improving the health of populations (Blackstone & Fuhr, 2016). MSSP ACOs follow guidelines established by the Centers for Medicare and Medicaid Services (CMS), where established incentives are tied to measurements that incorporate multiple aspects of the patient experience, care coordination, and clinical outcomes (Hostetter & Klein, 2011; USDHS, 2011).

In the United States, health care problems such as unsustainable costs and poor quality have been noted concerns among all stakeholders. Unsustainable costs and poor quality have been attributed to disintegration and fragmentation, which results from a focus on individual parts of care without adequately considering their connection to the whole (Strange, 2009). Fundamental to the pursuit of closer alignment is the reality that delivery of health care can vary between patients, providers, and organizations (Noon, Hankins, & Cote, 2003). Aside from straight cost cutting, providers have dealt with constraints on revenue that operational reductions became common (Noon et al., 2003).

Different operational methods to cut costs between provider groups and health facilities often contributes to variation in the resources and services being offered, which leads to patients being spread across a higher volume of providers (Noon et al., 2003). When a patient is spread across higher numbers of providers, where there are inconsistencies between information systems, billing procedures, and procedural metrics being utilized, fragmentation inevitably ensues. To assess the relationship between quality and costs when patients are spread across a higher volume of providers, Frandsen, Joynt, Rebitzer, & Jha (2015) assigned a fragmentation index to 506,376 chronically ill, privately insured enrollees for whom care patterns spread across a higher number of providers were considered to be more fragmented. Findings indicated that patients with higher fragmentation indexes had higher rates of preventable readmissions, which were associated with care expenses $4542 higher per enrollee (Frandsen et al., 2015).

To further examine the relationship between fragmentation and readmission rates, Kothari et al. (2017) analyzed the effect fragmentation has on readmissions when assessing post-discharge liver transplant patients. The researchers collected data from 2,996 patients across 299 hospitals and found that 1,236 of those encounters were the result of fragmentation. Study results led the researchers to conclude that post-discharge fragmentation significantly increases the risk of both 30-day mortality and subsequent readmissions in the first year after liver transplants (Kothari et al., 2017).

Recognizing the potential impacts that disintegration and fragmentation have on planning and delivery in health care has been an essential first step towards an integrated solution (Shaw & Rosen, 2013). Integrated care can be defined as an understanding of

patient needs achieved through the multidisciplinary alignment of a system and its components (Kodner & Spreeuwenberg, 2002). Shortell & McCurdy (2010) explored the effect that integrated care has on efficiency and found that fully integrated systems were able to increase transparency and accountability at higher levels when compared to organizations that were not fully integrated. To more fully understand the value of integrated team-based care, a cohort study assessing patients physical and mental health over time was conducted by Reiss-Brennan et al. (2016). The study followed patients who received care from team-based practices (TBP; high integration) and those who received care from traditional practices (TP; low integration) over 10 consecutive performance years (Reiss-Brennan et al., 2016). Collectively, data showed that TBP had a lower rate of emergency room visits, lower hospital admission rate, and lower number of outpatient care encounters, which resulted in a 3.3% savings on all health costs for patients who were enrolled under the TBPs.

The outcomes associated with integrated care are well documented and have highlighted the importance of accountability and integration required to deliver quality and affordable care. As such, mandates within the ACA took aim at changing the landscape and delivery of health care in the United States by encouraging patient-centered care, higher levels of integration and coordination, and improved access (Hardcastle, Record, Jacobson, & Gostin, 2011). The ACA initiated health reform that was designed to change numerous aspects of health care in hopes of positively reaching every American citizen (Manchikanti, et al., 2011). The primary goal of the ACA was to provide affordable and accessible care to the American population through insurance

reform (Jennen, 2014). To succeed, mandates within the ACA must slow spending while at the same time improve quality (Fisher et al., 2009). Since an increasingly complex and fragmented delivery system was widely acknowledged during initial reform provisions, impartial efforts to address spending gaps played an important role. Creating value through payment reform meant that accountability had to be addressed for both the quality and cost of care. Payment systems that rewarded volume and growth over value were to be eliminated and the widespread belief that more medical care equals better medical care be corrected (Fisher et al., 2009).

Realigning the health care system for long-term changes involved emphasis on positioning providers as key members of health organizations and integrated care systems (Rudnicki, et al., 2016). ACA mandates have enabled CMS the ability to test new payment and delivery systems that measure quality and costs through performance measurements (Rosenbaum, 2011). The emergence of new care models to address national priorities, such as reducing readmissions and improving the patient experience, have been founded on best practices set forth by the IHI Triple Aim philosophy (Bernatz, Tueting, & Anderson, 2015).

In 2008, IHI established the Triple Aim, a systems approach geared towards improving the patient experience, addressing population health, and lowering the costs of care (McCarthy, 2015). This framework has been widely adopted across the health care industry as a best practice approach. McCarthy (2015) suggested that the framers of the ACA were influenced by Triple Aim principles. Additionally, CMS used IHI's Triple Aim philosophy as an approach to develop initiatives for ACOs (Berwick, 2011; IHI,

2009). Historically, those advocating patient-centered care focused solely on the relationship between the patient and physician; however, changes to the care system suggests that patient-centered care involves a wider array of components that can affect patient experience and clinical outcomes (Greene, Tuzzio, & Cherkin, 2012). Health organizations receiving Medicare payments are required to administer the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Survey to receive annual payment updates from CMS (CMS, 2013a). However, MSSP ACOs must adhere to more stringent guidelines that demonstrate adoption of patient-centered and coordinated care processes (American Hospital Association, 2010). In this study, I used publicly reported CAHPS survey data from CMS to clarify the relationship between newly focused patient experience measurements and readmissions in MSSP ACOs, thus evaluating both policy and performance relevant to the sustainability of the U.S. Medicare program.

This section comprises subsections focused on (a) the research problem and issues addressed in this study; (b) the purpose of the study; (c) the research question (RQ) and associated hypotheses; (d) the theoretical foundation; (e) the nature of the study, including the rational for the study's design; (f) the literature strategy; (g) the terms used in the study; (h) the assumptions for the study; (i) the scope and delimitations addressing validity, study boundaries, and generalizability; (j) the study's limitations; and (k) the significance of the study, and potential contributions of the study for positive social change.

Problem Statement

In 2011, 15-25% of inpatient discharges were readmitted within 30 days, which contributed to an excess cost of over $41.3 billion dollars to the U.S. health care system (Mansukhanim, Bridgeman, Candelario, & Eckert, 2015). Medicare patients represented the largest share of total readmissions and health costs when compared to all other patient categories (Mansukhanim et al., 2015). To address excess readmissions, the AHA (2010), suggested improving care coordination and the patient experience to reduce readmission rates by as much as 20-40%; however, few studies have verified whether there is an association between patient experience measurements and readmission rates (Horwitz et al., 2011). Following the ACA, there has been substantial growth in the number of MSSP ACOs that have been designed to improve care coordination and provide greater value to patients (Siddiqui & Berkowitz, 2014).

Researchers are beginning to explore the effect that MSSP ACOs are having on financial savings (Colla et al., 2013; Colla et al., 2016; Kautter et al., 2012; Pope et al., 2012); however, few have explored the effect the model is having on patient experience and readmissions (Abrams et al., 2015; Song, 2014; Manary et al., 2013). Researchers who have evaluated the relationship between patient care experiences and readmissions have reached different conclusions (Rothenfluh & Schulz, 2017; Heidenreich, 2013). Glover et al. (2015) identified an association between patient care experience ratings, readmissions, and mortality rates, whereas Chang et al. (2006) found no association between the quality outcomes of care and patient rating of care.

Manary et al. (2013) highlighted that inconsistent findings may be the result of researchers using different methods and variables to measure patient experience ratings and readmissions. The increasing role of patient experience and quality reporting standards has highlighted the development of quality assessment (Manary et al., 2013). The use of CAHPS surveys has been standardized for evaluating measures that assess care coordination/patient safety, patient/caregiver experience, preventative health, and management of at-risk populations (Blackstone & Fuhr, 2016). Kern et al. (2013) conducted the first longitudinal study utilizing CAHPS data to analyze the relationship between patient experience data and readmissions in the patient-centered medical home (PCMH) model; however, I could find no similar studies evaluating patient experience data and readmission in MSSP ACOs.

Patient experience data could be used to drive improvements in care at national and local levels; however, this requires a deeper understanding of how new experience measurements relate to outcomes, such as readmissions (Beattie, Murphy, Atherton, & Lauder, 2015). I designed this study to identify whether policy is contributing to performance through the establishment of MSSP ACOs. Developing a greater understanding of patient experience measurements addresses an important knowledge gap for policy makers, administrators, providers, and patients given that solutions are required to combat excess readmissions for a growing Medicare population. Demonstrating an association between outpatient experience measurements and inpatient readmission rates may further clarify the importance of communication and alignment between the different echelons of care. One common misperception is that quality improvements fall

solely on providers; however, improving the patient experience requires effort from all members of a health care organization (Trivisonno, 2014). Further defining the importance of patient experience as an influential variable that contributes to quality outcomes illustrates a powerful mechanism and motivator relevant to all stakeholders.

Purpose of the Study

The purpose of this quantitative, correlational study was to investigate the relationship, if any, between the all condition readmission rate (per 1000) and CAHPS patient experience scores for MSSP ACOs. The CAHPS patient experience domain was the independent variable and is comprised of *ACO Measure 1: getting timely care, appointments, and information*; *ACO Measure 2: how well your providers communicate*; *ACO Measure 3: patients' rating of doctor*; *ACO Measure 4: access to specialists*; ACO *Measure 5: health promotion and education*; *ACO Measure 6: shared decision making*; and *ACO Measure 7: health status/functional status* are the patient experience domain measurements (CAHPS, 2017). The dependent variable was the unstandardized *all condition readmission rate (per 1000)* (CAHPS, 2017).

According to Vest et al. (2010), controlling for the varying level of definitional variables, gaps, and methodological inconsistencies among readmissions and patient experience measurements helps control for variation; conversely conducting this research required adjusting for the effects of covariates, which included Medicare service region, number of beneficiaries, and performance year. Similar covariates were used by Kern et al. (2013) to address the knowledge gap between patient experience ratings and readmissions among PCMH. Findings from this study may emphasize the importance of

adopting patient-centered care models as a means of improving the accessibility, affordability, and quality of care.

Research Question and Hypotheses

RQ: To what extent, if any, is the all condition readmission rate related to CAHPS patient experience domain when controlling for performance year, region, and number of beneficiaries?

$H_0$1: The all condition readmission rate is not related to *ACO Measure 1: getting timely care, appointments and information*, when controlling for performance year, region and number of beneficiaries.

H_a1: The all condition readmission rate is related to *ACO Measure 1: getting timely care, appointments and information*, when controlling for performance year, region and number of beneficiaries.

$H_0$2: The all condition readmission rate is not related to *ACO Measure 2: How well your providers communicate,* when controlling for performance year, region and number of beneficiaries.

H_a2: The all condition readmission rate is related to *ACO Measure 2: How well your providers communicate,* when controlling for performance year, region and number of beneficiaries.

$H_0$3: The all condition readmission rate is not related to *ACO Measure 3: patients' rating of provider*, when controlling for performance year, region and number of beneficiaries.

H_a3: The all condition readmission rate is related to *ACO Measure 3: patients' rating of provider*, when controlling for performance year, region and number of beneficiaries.

H_04: The all condition readmission rate is not related to ACO *Measure 4: access to specialists*, when controlling for performance year, region and number of beneficiaries.

H_a4: The all condition readmission rate is related to *ACO Measure 4: access to specialists*, when controlling for performance year, region and number of beneficiaries.

H_05: The all condition readmission rate is not related to *ACO Measure 5: health promotion and education*, when controlling for performance year, region and number of beneficiaries.

H_a5: The all condition readmission rate is related to *ACO Measure 5: health education and promotion*, when controlling for performance year, region and number of beneficiaries.

H_06: The all condition readmission rate is not related to *ACO Measure 6: shared decision making*, when controlling for performance year, region and number of beneficiaries.

H_a6: The all condition readmission rate is related to *ACO Measure 6: shared decision making*, when controlling for performance year, region and number of beneficiaries.

H_07: The all condition readmission rate is not related to *ACO Measure 7: health status/ functional status*, when controlling for performance year, region and number of beneficiaries.

H_a7: The all condition readmission rate is related to *ACO Measure 7: health status/ functional status*, when controlling for performance year, region and number of beneficiaries.

Theoretical Foundation for the Study

The theoretical framework for this study was Ludwig von Bertalanffy's (1968) *general system theory* (GST). Bertalanffy's GST is a method for defining a complex system that operates through the nonlinear interactions of subsystems where each system includes defined boundaries (von Bertalanffy, 1968). Understanding the interaction of a system and preceding subsystems has extended to health care, as clarification is frequently needed to interpret the different dynamics and structures throughout the health care system (McDaniel, Lanham, & Anderson, 2009). According to Cordon (2013), one of the most important attributes of GST is its ability to account for how a system changes and adapts. This attribute is pertinent to the U.S. health care system, where the accelerating rate of change and interaction are frequent between the overall health system and subsystems (see Figure 1). According to the National Academy of Engineering and Institute Of Medicine Committee on Engineering, Figure 1 was a product adapted from Ferlie & Shortell (2001), who depicted the health care system as divided into four levels: (a) the individual patient; (b) the clinical care team; (c) the organization (e.g., hospital, clinic, etc.) that supports the care team; and (d) the external environment provides the political and economic environment (e.g. financial, payment mandates, policy) under which organizations, care teams, and individual patients operate.

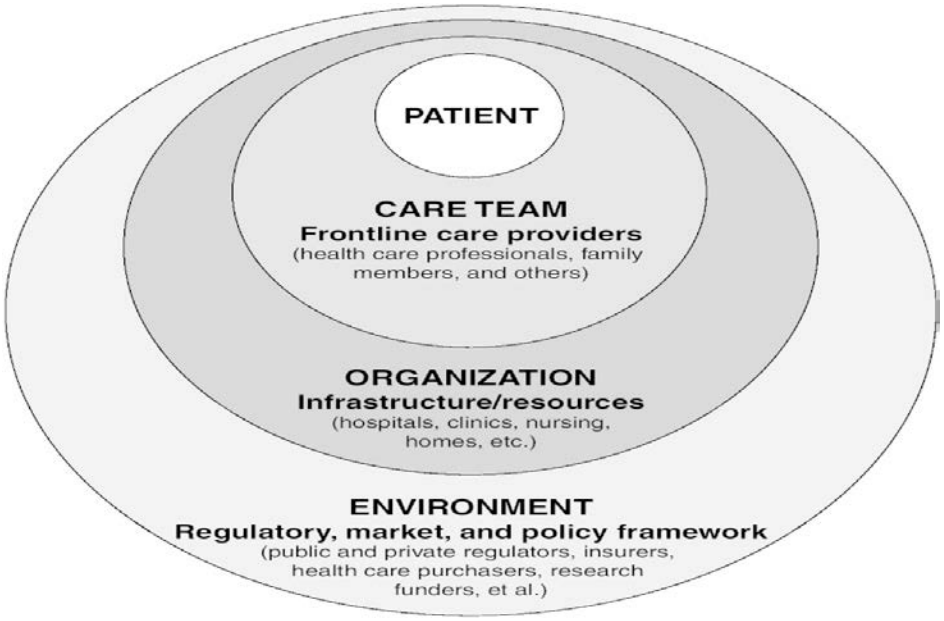

Figure 1. Diagram of the four-level health care system. Adapted from Building a better delivery system: A new engineering/health care partnership (2005) retrieved from https://www.ncbi.nlm.nih.gov/books/NBK22878/

Subsequent research and application of von Bertalanffy's theory has shown how systems operate most effectively at equilibrium, but requires components both inside and outside of the system to reach equilibrium (Cordon, 2013). More specifically, a system is characterized by two or three components that must satisfy specific conditions: (a) the behaviors of each component have an effect on the behaviors of the whole; (b) the behaviors of components that have an effect on the behaviors of the whole are interdependent; (c), and lastly, however subgroups of the components are formed, each has an effect on the behavior of the entire entity and none has an independent effect on it (Ferond, 2006). Core principles of GST in health delivery posits equilibrium or teamwork among health professionals that make up all components of care (McCovery & Matusitz,

2014). By adopting a general system approach to identify the elements of cooperation and collaboration in the U.S. health system, I not only sought to promote physical and financial support, but also to outline the alignment of policy with evidence-based practice (McCovery & Matusitz, 2014). As O'Halloran et al. (2012) noted, the ACO framework aligns quality measures within the interests of patients and providers, forming collaboration between the health organization and its environment.

Nature of the Study

This was a quantitative, correlational study. Quantitative research is a relevant means of interpreting statistical data from patient readmissions and patient satisfaction surveys, which are both linked to health care cost containment, improved integration, and improved patient outcomes (Lagoe, Nanno, & Luziani, 2012). I analyzed Archival CAHPS data from CMS using a multiple regression model to determine whether a correlation exists between patient experience measurements and readmission rates in MSSP ACOs. Covariates in the design included an organizations number of beneficiaries, region of care, and performance year. Other methods, such as qualitative, experimental, and quasi-experimental designs are common in the medical field. However, qualitative methodology does not provide a means of deriving statistical significance; therefore, it was not an appropriate method for this study (Swanson & Holton, 2005). Experimental and quasi-experimental research designs employ control and manipulation strategies to determine cause-and-effect relationships (Swanson & Holton, 2005). No manipulations or interventions were required for this study. The framework of von Bertalanffy's (1968)

GST helped me identify and explain interactions between the system, providers, and patients, all of which operate independently, but strive for equilibrium or wholeness.

Patients receiving care in U.S. hospitals who are Medicare beneficiaries receive surveys inquiring about their overall experience, which include questions regarding provider communication, nurse communication, responsiveness of staff, pain management, discharge information, cleanliness, and transition of care (Berkowitz, 2016). Patient experience scores and readmission data is standardized by CMS as a rate. I used bivariate statistics, followed by a multiple linear regression analysis to determine whether there was an association between the unstandardized all condition readmission rate (per 1000) and the patient experience domain when controlling for performance year, region, and number of beneficiaries. The CMS database was used to capture data for MSSP ACOs, variables, and covariates.

To thoroughly evaluate the study's problem, I identified, reviewed, and summarized previous literature (see Table 1). Past research was used as a foundation for my research topic while attempting to address identified gaps.

Literature Search Strategy

Four databases (PubMed, ProQuest Central, Medline, and Cochrane), one library (Walden University), and Google Scholar were examined to locate scholarly journal articles related to the research question. Key words were used in meta-analyses and previously cited references to aid in the finding and seeking of relevant literature. All key words were combined with standard key words from the PubMed, Medline, and Cochrane databases. Google Scholar was used to find sources included in other databases;

I linked sources to the world catalog, local library, and Walden collections using the library link. Some of the key words used in the searches were *fragmentation, health reform, triple aim, accountable care organizations, Medicare, patient experience, readmission rates, CAHPS,* and *general system theory*. I focused the search on materials published in the last 5 years, but used older literature was used if more recent information was unavailable. I gathered and analyzed 136 seminal articles relevant to the research topic. In this section, I discuss 40 of those sources.

Table 1

Literature Review Matrix

Author(s)/ Title	Overview (Design, Sample, Analysis)	Results/ Conclusion
Boulding, Glickman, Manary, Schulman, & Staelin (2011) Relationship between patient satisfaction with inpatient care and hospital readmission within 30 days	Cross-sectional 1798 acute care hospitals Multivariable logistic regression	Higher patient satisfaction and satisfaction with discharge planning are associated with lower 30-day hospital readmission rates. Findings suggest that patient-centered information can have important role on management and performance. (OR, .96, 95% CI, .95-.97). Improvements were 1.6 and 4.9 times higher than controls.
Trivisonno (2014) Improving HCAHPS, patient mortality and readmission: Maximizing reimbursements in the age of health care reform	Structural equation modeling 1,879 healthcare organizations	Phase 1 indicated that HCAHPS and clinical quality processes are cause-and effect drivers of patient mortality and readmissions. Phase 2 indicated that HCAHPS overall ratings are a statistically significant, cause-and-effect driver of clinical care processes, followed by nurse communication, discharge information, cleanliness/quietness, and pain management.
Albright, Lewis, Ross, & Colla (2016) Preventive care quality of Medicare Accountable Care Organizations: Associations of organizational characteristics with performance	Cross-sectional 252 ACOs Regression analysis	Participation in the Advance Payment Model, having fewer specialists, and having more Medicare ACO beneficiaries per PCP were associated with significantly better outcomes. Better performance on disease prevention was also associated with inclusion of an inpatient facility.

(table continues)

Author(s)/Title	Overview (Design, Sample, Analysis)	Results/Conclusion
Whittaker, Anselmi, Kristensen, Lau, Bailey, Bower, Checkland, Elvey, Rothwell, Stokes, & Hodgson, (2016) Associations between Extending Access to Primary Care and Emergency Department Visits: A Difference-In-Differences Analysis.	515 primary care practices Differences analysis	PCP with extended access demonstrated 26.4% (10,933 fewer visits) reduction in patient-initiated ED visits.
Kirby, Dennis, Jayasinghe, & Harris (2010) Patient related factors in frequent readmissions: the influence of condition, access to services and patient choice	Retrospective analysis 20,000 emergency visits Multivariate analysis	20% of ED visits resulted in an admission, where readmitted patients were more likely to be older, have urgent Triage classification, and have a chronic diagnoses.
Herrin, St. Andre, Kenward, Joshi, Audet & Hines (2015) Community Factors and Hospital Readmission Rates	Hierarchical linear models 4,073 hospitals Multivariable analysis	58% of national variation in hospital readmission was explained by hospital location. Strongest association with higher readmission rates was access to care.
Colla, Lewis, Gottlieb, & Fisher (2013) Cancer spending and accountable care organizations: Evidence from the Physician Group Practice Demonstration	Difference in difference design 10 physician groups Regression analysis	Physician group practice demonstrated an association with average Medicare spending reduction per cancer patient of $721 and an annual 3.9% reduction in payments per patient, which was primary attributed to a reduction in inpatient admissions.
Colla, Lewis, Kau, O'Malley, Change, & Fisher (2016) Association between Medicare accountable care organization implementation and spending among clinically vulnerable beneficiaries	Cohort study Medicare ACOs beginning contracts in 2012 & 2013	Total spending per Medicare beneficiary decreased by $34 (95% CI, -$52 to -$15) per quarter after ACO implementation. Total spending for clinically vulnerable patients decreased by $114 (95%, -$178 to -$50).
Kautter, Pope, Leung, Trisolini, Adamache, Smith, Trebino, Kaganova, Patterson, Berzin, & Schwartz (2012) Evaluation of the Medicare Physician Group Practice Demonstration: Final Report	Observational design 1,776,387 Medicare claims Regression model	Demonstration sites saved $171 (2.0%) per assigned beneficiary per year ($p<0.001$). Medicare net savings per person per year was $69 (0.8%).

(table continues)

Author(s)/ Title	Overview (Design, Sample, Analysis)	Results/Conclusion
McWilliams, Hatfield, Chernew, Landon, & Schwartz (2016) Early Performance of Accountable Care Organizations in Medicare	Quasi-experimental 220 ACOs	Estimated savings were greater in PCPs than in hospital-integrated groups (P=0.005).
Nyweide, Lee, Cuerdon, Pham, Cox, Rajkumar, & Conway (2015) Association of Pioneer Accountable Care Organizations vs Traditional Medicare Fee for Service with Spending, Utilization, and Patient Experience	803,258 ACO enrollees 12,134,154 traditional non-ACO enrollees Multiple linear regression	Enrollees exhibited smaller increases in expenditures, and differential reductions in utilization of different services. There were noted differences in patient experience (77.2 ACO vs. 71.2 non-ACO)
Pope, Kautter, Leung, Trisolini, Adamache, & Smith (2014) Financial and quality impacts of the Medicare physician group practice demonstration	Comparison group observational design 1,776,387 Medicare claims Regression analysis	Impact of savings across PCP was a savings of $171 per assigned beneficiary (SE=$22, 95% CI=$127 to $215, p<0.001).
Winblad, Mor, McHugh, & Rahman (2017) ACO-Affiliated Hospitals Reduced Rehospitalizations From Skilled Nursing Facilities Faster Than Other Hospitals	226 ACO hospitals & 1,844 non ACO hospitals Logistic regression	ACO-affiliated hospitals were able to reduce rehospitalizations more quickly, which suggests they are discharging more effectively, or enhancing information and communication
Ryan, Krinsky, Adler-Milstein, Damber, Maurer, & Hollingsworth (2017) Association between Hospitals' Engagement in Value-Based Reforms and Readmission Reduction in the Hospital Readmission Reduction Program	Retrospective longitudinal study 2837 hospitals	Participation in multiple value-based reform programs was associated with greatest change in readmissions among AMI, heart failure, and pneumonia patients (95% CI, -1.32 to -0.78).
Walker & Mora (2016) Quality Improvement Strategies in Accountable Care Organization Hospitals	334 ACO hospitals & 565 non-ACO hospitals Logistic Regression	Findings indicated ACO hospitals were significantly less likely to use only 1 quality improvement tool when compared to non-ACO hospitals. ACO hospitals tended to be more located in the Northeast service region.

(table continues)

Author(s)/ Title	Overview (Design, Sample, Analysis)	Results/Conclusion
Kolbasovsky, Zeitlin, & Gillespie (2012) Impact of point of care case management on readmissions and costs	Baseline cohort 4-primary care provider groups Regression analysis	17.60% of members were readmitted in control group compared to 12.08% readmitted in the intervention group. Managed care and collaborating allows for enhanced outcomes in ACO and PCMH models
Maeng, Davis, Tomcavage, Graf, & Procopio (2013) Improving patient experience by transforming primary care: Evidence from geisinger's patient-centered medical home	1500 outpatient practices Logistic regression	Patients at PHN sites were significantly more likely to perceive changes in terms of care coordination and services; they were also more likely to report that quality was better than before PHN. CAHPS survey would have been valid survey instrument; however, results were not released at time of study/ Suggested ACO examination to understand care coordination.
Fenton, Jerant, Bertakis, & Franks (2012) The Cost of Satisfaction: A National Study of Patient Satisfaction, Health Care Utilization, Expenditures, and Mortality	Prospective cohort 51946 patients Linear Regression	Patient in highest satisfaction quartile had lower odds of ED visits (aOR, .92, CI, .84-1.00), higher odds of admission (aOR, 1.12, CI, 1.02-1.23), and higher mortality (aHR, 1.26, CI, 1.05-1.53).
Arshad, Shamila, Jabeen, & Fazli (2012) Measuring patient satisfaction: A cross section study to improve quality of care at a tertiary hospital	Cross sectional design 400 patients	Simpler methods of registration, clean facility, strict time schedules, and efforts to reduce patient overload most important to satisfaction
Glover, Khalilzadeh, Choy, Prabhakar, Pandharipande, & Gazelle (2015) Hospitals evaluations by social media: A comparative analysis of facebook ratings among performance outliers	Retrospective cross-sectional study 315 acute care facilities	Major teaching hospitals were 14.3 times more likely to have higher readmissions than non-teaching hospitals.
Wang, Tsugawa, Figueroa, & Jha (2016) Association Between the Centers for Medicare and Medicaid Services Hospital Star Rating and Patient Outcomes	3076 Hospitals Linear Regression	Higher CMS start ratings were associated with lower adjusted rates with 5-star hospitals having the lowest readmission rate

(table continues)

Author(s)/ Title	Overview (Design, Sample, Analysis)	Results/Conclusions
Safran, Wilson, Williams, Montgomery, & Hong (2002) Comparing the Performance of Medicare Health Maintenance Organizations and Traditional Fee-for-Service Medicare	Cross-sectional observational survey	Performance favored traditional FFS Medicare over HMOs (P<.001).
Joynt & Jha (2011) Who has higher readmission rates for heart failure, and why? Implications for efforts to improve care using financial incentives	Multivariable models 905, 764 Medicare beneficiary inpatient stays	Patients discharged from smaller hospitals (27.9%) had higher readmission rates than larger hospitals (25.7%). Poor-performing hospitals have fewer resources and may suffer disproportionately from financial penalties
Jencks, Williams, & Coleman (2009) Re-hospitalizations among patients in the Medicare fee-for-service program	Cox proportional-hazards model 13,062,937 Medicare discharges from acute care facilities	Rehospitalization rate was 45% higher in the five states with the highest rates than in the states with the lowest rates.
Montero, Stevenson, Guthrie, Best, Goodman, Shrotriya, & Khorana (2016) Reducing Unplanned Medical Oncology Readmissions by Improving Outpatient Care Transitions: A Process Improvement Project at the Cleveland Clinic	Prospective study 722 unplanned 30-day readmissions	Initial readmission rate of 27.4% to post readmission rate of 22.9% (P<.01). Modest readmission reduction can be achieved through better systematic transitions.
Phillips, Wright, Kern, Singa, Shepperd, & Rubin (2004) Comprehensive discharge planning with post discharge support for older patients with congestive heart failure	3,304 inpatient congestive heart failure patients	Discharge planning and support significantly reduced readmission rates and improved health outcomes (P=.03).
Moseley, Accavitti, Bhakta, Colbert, Hinch, & Mohamedali (2017) Reducing Heart Failure Readmissions Using Multidisciplinary Approach	760 patients T-tests	Prior to creation of clinician pathway, 30 day readmission rate was 22.5%, whereas after the pathway the 30 day readmission rate was 16.6%.
Dadosky, Overbeck, Egnazyk, Menon, Obrien, & Chung (2016) The Effect of Enhanced Patient Education on 30-day Heart Failure Readmission Rates	303 patients	30-day readmission rate for control group (n=228) (18%), whereas 30-day readmission rate for intervention group (n=75) (12%).

(table continues)

Author(s)/ Title	Overview (Design, Sample, Analysis)	Results/Conclusions
Schaffer, Hess, Hollander, Kline, Torres, Diercks, Russell Jones, Owen, Meisel, Demers, Leblanc, Inselman, Herrin, Montori, & Shah (2017). Impact of Shared Decisions Making Intervention on Health Care Utilization: A Secondary Analysis of the Chest Pain Choice Multicenter Randomized Trial.	Randomized trial 898 patients	Mean observation for length of stay in trial patients were 95 minutes shorter than control (95 CI, 40.8-149.8) and the number of mean tests were lower in trial patients than controls (decrease in 19.4 imaging tests per 100 patients, 95% CI, 15.5-23.3).
Shortell, Bing, Ramsay, Rodriguez, Ivey, Huber, Rich, & Summerfelt (2017) A Multilevel Analysis of Patient Engagement and Patient-Reported Outcomes in Primary Care Practices of Accountable Care Organizations	Cross-sectional observational study 4368 patients	Patient-centered care was positively associated with better physical function scores among patients with chronic illnesses (OR=1.85; CI 1.25, 2.73). Coordination and shared decision-making activities as reported by ACOs were not significantly associated with higher patient-reported outcome scores.
Ratanawongsa, Karter, Parker, Heisler, Moffet, Adler, Warton, & Schillinger (2013) Communication and medication refill adherence: the Diabetes Study of Northern California	Cross-sectional 9377 diabetes patients Modified regression	Patients who gave providers poor marks for shared-decision making were more likely to have lower medication adherence compared to those who rated providers high in shared-decision making (P=.02).
Rosen, Fridman, Rosen, Shane, & Pevnick (2017) Medication adherence as a predictor of 30-day hospital readmissions	Retrospective cohort 385 patients Logistic regression	Patients with low adherence had readmission rates of 20%, whereas patients with high adherence had readmission rates of 9.3% (P=.005).
Gebhardt, Wolak & Huber (2012) Patient satisfaction and clinical parameters in psychiatric inpatients: the prevailing role of symptom severity and pharmacologic disturbances	113 psychiatric patients T-tests, univariate analyses, and Pearson correlations	Patient satisfaction is dependent on symptom severity and symptom relief.
Smith (2014) Magnet Hospitals: Higher Rates of Patient Satisfaction	2001 acute care hospitals ANOVA	Magnet and Magnet in progress organizations have higher HCAHPS scores than in patient-satisfaction than non-Magnet facilities (P<.007)

(table continues)

Author(s)/Title	Overview (Design, Sample, Analysis)	Results/Conclusions
Peikes, Chen, Schore, & Brown (2009) Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries	18,309 Medicare patients between 15 hospitals Logistic regression	No significant differences in hospitalizations, expenditures, or quality indicators between test group and control. Care coordination programs without transitional components are unlikely to yield net savings for Medicare.
Elliot, Haviland, Cleary, Zaslavsky, Farley, Klein, Edwards, Beckett, Orr, & Saliba (2013) Care Experiences of Manages Care Medicare Enrollees Near the End of Life	Retrospective study 402569 Medicare enrollees Regression analysis	12102 enrollees (3%) died within 1 year of survey. Those enrollees reported slightly better experiences for access, plan ratings, and drug coverage (P=.02).
Kennedy, Craig, Wetsel, Reimels, & Wright (2013) Three nursing interventions' impact on HCAHPS scores	Plan-do-study-act cycles 3 separate interventions employed at 461-bed facility	Patients tend to accept physician instruction without question. Most common questions that arose were with medication usage. Sustained increase in satisfaction scores resulted from staff becoming familiar with implemented processes resulting from patient feedback.
Bertakis & Azari (2011) Patient-centered care is association with decreased health utilization	Davis Observation Code model 509 patients Regression analysis	Higher patient-centered care reported decreased visits for specialty care (P=.0209), less hospitalizations (P=.0033), and fewer diagnostic tests (P=.0027).
Kern, Dhopeshwarkar, Edwards, & Kaushal (2013) Creating and sustaining a culture of accountability for patient experience	Prospective study, using 2 serial cross-sectional samples 715 PCMH patients	Patients' self-reported experience with access to care improved significantly over time (P=.02). One of the first studies to find a positive effect of the PCMH on patient experience.

Literature Review

In this subsection, I briefly examine literature on U.S. health care reform policy relating to Medicare's creation of Shared Saving Plan Accountable Care Organizations (MSSP ACOs). In addition, I review literature on key variables, patient experience and hospital readmissions, to include studies which have explored the relationship that patient experience *measure 1: getting timely care, appointments, and information*; *measure 2: how well your providers communicate*; *measure 3: patients' rating of doctor*; *measure 4: access to specialists*; *measure 5: health promotion and education*; *measure 6: shared decision making*; and *measure 7: health status/functional status* had on readmissions. Lastly, I describe the rational for covariate inclusion, then summarize the gaps in the literature relating to improving the patient experience as an evidence-based approach toward reducing the all condition readmission rate.

U.S. Health Care Reform and Medicare ACO Overview

Prior to Medicare reform and establishment of MSSP ACOs, Medicare expenditures for avoidable readmissions cost approximately twelve billion dollars per year (Jencks, Williams, & Colema, 2009). ACA policy makers considered the reduction of readmissions to be the low hanging fruit able to bend the health care cost curve (Steventon & Krumholz, 2014). To expand Medicare efforts toward improved quality, cost, and collaboration, section 3022 of the ACA addressed the implementation of an incentive-based model that establishes accountability and rewards value over volume, which sparked the creation of ACOs (Silow-Carroll et al, 2011; Barry et al, 2016). The term accountable care organization describes the development of partnerships between

hospitals and physicians to coordinate and deliver efficient care, where joint accountability aligns key competencies, such as leadership, teamwork, provider relationships, infrastructure for monitoring, managing, and reporting quality, management of financial risk, ability to receive and distribute payments, and resources for patient education and support (AHA, 2010). Aligning key competencies adds value to the health care industry by improving patient experience and care outcomes (Elliot et al., 2010). The Institute of Medicine (IOM; 2011) focused on the quality of care in the United States by including six recommended aims to improve the patient experience: (a) safe care, (b) effective care, (c) patient-centered care, (d) timely care, (e) efficient care, and (f) equitable care. Huppertz & Carlson (2010) noted that CMS incorporates all IOM aims into their CAHPS survey, representing a powerful impact on performance ratings and reimbursement rates.

Research has indicated that better patient care experiences are associated with higher levels of adherence to prevention and treatment processes, better clinical outcomes, better patient safety, and less health utilization (Anhang Price et al., 2014; Boulding et al., 2011). As such, CMS has identified a core set of healthcare provider behaviors that are associated with patient experience (Trivisonno, 2014). These behaviors have been translated into questions and are incorporated into the CAHPS patient/caregiver experience section of the survey that contributes to 25% of an ACO's quality score and reimbursement rate (Adams, Brown, & Giordano, 2017). Public reporting of survey measurements has caused a spike in interest among patients, providers, and health organizations. National survey data has indicated 1 in 6 Americans consulted online reviews of providers and practice groups when selecting a provider and health plan

(Anhang Price et al., 2014). As of 2014, MSSP ACOs have not only reduced readmissions by following specified measures outlined by CMS, they have also generated $877 million in savings that allowed a decrease in patient fees for services (Tu et al., 2015).

Because MSSP ACO components have been formed around best practices, much research has focused on short-term financial performance instead of underlying associations within the patient-centered model (Anhang Price et al., 2014; Song, 2014). Success of MSSP ACOs cannot be solely judged on cost savings, as long-term success requires an understanding of the drivers that enable subsequent trends (Albright et al., 2016).

Literature Review Related to Key Variables and Concepts

Receiving timely care, appointments, information and readmissions

Receiving timely care, appointments, and information is one of the first patient-reported experience measurements captured by the CAHPS for MSSP ACOs. Because emergency department (ED) visits are more likely to result in patient admissions than outpatient visits, the goal of providing higher access and availability for outpatient services in order to reduce emergency department visits has been a long-standing goal (Clark, Bourn, Skoufalos, Beck, & Castillo, 2017).

Whitaker et al. (2016) studied the relationship between outpatient service availability and ED usage and observed a 26.4% reduction in patient visits to EDs for minor problems when access to outpatient service was increased (Whitaker et al., 2016). The availability of outpatient services is important for preventing unnecessary ED visits,

especially for patients with chronic conditions. Kirby et al. (2010) examined clinical data, service usage, and patient demographic characteristics to understand the influence the measurements had on ED visits and readmissions. They found that frequently readmitted patients from ED visits were categorized as elderly, with an urgent triage classification resulting from a chronic condition (Kirby et al., 2010). Similarly, Herrin et al. (2015) explored characteristics of readmissions to assess the effect that county demographics, access to care, and nursing home quality had on chronic conditions over 3 performance years. Limited access to care had the strongest association with patients discharged and readmitted for acute myocardial infarction, heart failure, and pneumonia was limited access to care (Herrin et al., 2015).

Various scholars (e.g. Colla et al., 2013; Colla et al., 2016; Kautter et al., 2012; McWillliams et al., 2016; Nyweide et al., 2015; & Pope et al., 2014) have found Medicare ACOs were consistently associated with a reduction in inpatient stays and ED use. Furthermore, Colla et al., (2013) found a reduction in 30-day hospital readmission was associated with a reduction in inpatient stays and emergency department visits. Nyweide et al. (2015) concluded that a reduction in inpatient stays and ED visits did not translate into an increase in outpatient visits; however, effects showed a significant increase in follow-up visits within 7 days of hospital discharge, which is an indicator of outpatient care coordination. Additionally, Medicare beneficiaries assigned to ACOs reported higher mean scores for timely care and clinician communication relative to non-ACO beneficiaries, indicating that receiving timely care and access is an important driver for preventing readmissions (Nyweide et al., 2015).

Overall, the studies I reviewed had similar findings: reduction in ED utilization has been significantly associated with fewer admissions (Whitaker et al., 2016; Colla et al., 2013; Colla et al., 2016; Kautter et al., 2012; Nyweide et al., 2015). Additionally, reduction in ED utilization has resulted in Medicare spending reduction for beneficiaries (Colla et al., 2013; Colla et al., 2016; Kautter et al., 2012; McWilliams et al., 2016; Nyweide et al. 2015; see Table 1). While findings from Whitaker et al. (2016) and Herrin et al. (2015) found an association between an increase in outpatient access and a reduction in ED visits, Nyweide et al. (2015) noted that a reduction in ED visits did not translate into an increase of outpatient visits; however, patient experience ratings were higher for patients enrolled in ACOs compared to members enrolled in traditional fee-for-service models (see Table 1). Nyweide et al. did not examine whether there was an association was present between patient experience and the readmission rate. Authors also noted that number of assigned beneficiaries and location were influential factors attributed to access and readmission rates (Albright et al. 2016; Kirby et al., 2010; Herrin et al., 2015; McWilliams et al. 2016)

Multidisciplinary communication and readmissions

Multidisciplinary communication is an invaluable construct in health care often involving a treatment pyramid that includes all levels of providers and support staff (Epstein, 2014). Interdisciplinary alignment of health care is designed for the purpose of coordinating and enhancing the quality of care provided (Nester, 2016). Since multidisciplinary communication is incentivized and measured for ACOs, networks of provider groups readily work to improve communication in order to avoid readmissions,

preventable complications, and duplicate services, which are outcomes often associated with breakdowns in communication (Nester, 2016).

Winblad et al. (2017) identified that between years 2007 and 2013, there was a general reduction in readmissions in almost all hospitals across the United States. The study focused on value-based reform programs, specifically the effect that ACOs had on acute care facilities where Medicare beneficiaries were cared for. Utilizing HCAHPS data, researchers determined that ACO affiliated hospitals where able to reduce hospitalizations more quickly than other hospitals, suggesting that ACO affiliated facilities are targeting at-risk patients better, enhancing information sharing, and developing more effective discharge plans (Winblad et al., 2017).

Similarly, Ryan et al. (2017) and Walker & Mora (2016) found that ACO affiliated hospitals were more likely to participate in multiple value-based reform programs instead of only one program. Participation in only one incentive program was a common trend among non-ACO hospitals (Ryan et al., 2017; Walker & Mora, 2016). Additionally, organizations that participated in multiple value-based reform programs had a greater reduction in readmissions compared to organizations participating in only one value-based approach (Ryan et al., 2017).

With an ability to reduce readmissions and improve communication, point-of-care case management teams are becoming common (Kolbasovsky, et al, 2012). In a baseline cohort comparison group, Kolbasovsky et al. (2012) integrated a point-of-care management team into four different medical groups to compare the effect they had on 30-day readmissions and associated costs. Among eligible members, 93% were enrolled

in the case management program (Kolbasovsky et al., 2012. After 30-days, 17.6% of baseline cohort members were readmitted, whereas only 12.08% of intervention members were readmitted (Kolbasovsky et al., 2012). This study displayed evidence that case management as a quality improvement strategy has the potential to enhance outcomes and reduce costs.

Maeng et al. (2013) measured the outpatient experience of care surveys between patients whose clinics utilized case management programs and patients whose clinics did not utilize case management programs at patient-centered medical home (PCMH) sites. Data from the study relayed that patients whose clinics utilized case management programs were more likely to report positive changes in their care experience; moreover, they were more likely to cite their physician's office as the usual place of care rather than emergency departments (Maeng et al., 2013). As cited by Colla et al. (2013), a reduction in emergency department visits was associated with a reduction in readmissions; therefore, an assumption can be formed that the all condition readmission rate is associated with the CAHPS patients experience measure two, *how well your providers communicate*.

Much literature has been dedicated to multidisciplinary alignment and quality communication (e.g. Winblad, 2017; Mor, McHugh, & Rahman, 2017; Kolasovsky et al., 2012). Frequently, results depict a cause and effect relationship between high levels of integration and improved outcomes. Less frequently annotated is literature analyzing the patients' perception of clinical alignment. Maeng et al. conducted one of the first studies illustrating the importance of patient experience ratings, specific to the patients'

interpretation of provider communication and alignment, within the PCMH model, which is a primary care model similar to ACOs; however, no other authors were cited in the literature search measuring similar variables for ACOs. Maeng et al. suggested that a greater understanding of care coordination could be gained from ACO examination with the availability of CAHPS data, which was not released at the time of the study (see Table 1).

Patients' rating of provider and readmissions

Because physicians' professional training and experience creates a knowledge gap on medical matters between providers and patients, the value of public reporting has received much criticism (Rothenfluh & Schulz, 2017). Heidenreich (2013) proposed that patient-centered care and experience ratings are not always evidence-based; however, its use should be strongly considered because a large part of health care is about satisfying the patient who represents the customer. As noted by LaVela & Gallan (2014), patient experience does not reflect clinical outcomes or adherence-driven outcomes and should not be viewed alongside quality and costs.

Manary et al., (2013) performed an in-depth literature review on patient-reported experience measurements, which highlighted the potential factors associated with inconsistent results among published material. The study began with identifying three consistent problems surrounding the importance of patient experience as a reported measure. Authors asserted that: (1) patients do not possess the formal medical training; therefore, feedback on quality is not a valid metric; (2) healthcare is a service and instruments used to identify patient satisfaction may not be appropriate for technical care;

and (3) patients may base their opinions on the fulfillment of personal desire, which is inconsistent with whether the service is truly required or not. Furthermore, Manary et al. explained that patients could focus on specific events or visits when reporting experiences and may be more inclined to describe patient-provider interactions; moreover, timeliness of data collection after a visit can add to confounding factors that relate to contrasting results.

Regardless, as patients spend more money on care, consumer reports and feedback outlets become more viable options when deciding where to receive care. Arshad et al. (2012) administered questionnaires to a population of middle-aged patients who received outpatient care. 61.25% of patients reported their main reason for choosing the hospital was the skillfulness of the provider, which was relayed through public reviews (Arshad et al., 2012). As a patient-experience measurement tool, the CAHPS survey for ACOs is administered to 860 Medicare beneficiaries once per year over a three-month period (Adams, Brown, & Giordano, 2017). The random sample of surveys are averaged together, representing an overall score for the primary care group or organization. Averaging scores from a collection of surveys helps to eliminate bias from singular or circumstantial experiences. Outside of CAHPS reporting, there are numerous vendors reporting performance outliers. Glover et al. (2015) examined the patients' rating of hospital providers, which was a user-generated metric off social media, to a CMS hospital compare metric, specifically the 30-day all condition unplanned hospital readmission rate. Key findings for the regression analysis illustrated that hospitals with

lower rates of 30-day all condition readmissions had higher patient ratings on social media than hospitals with higher readmission rates (Glover et al., 2015).

Wang et al. (2016) & Trezeciak et al. (2016) utilized the CMS 5-star hospital rating system, where progressively 1-star represents the lowest rating and 5-star represents the highest rating, to investigate readmission and mortality rates. Researchers found that higher CMS star ratings were associated with lower patient mortality and readmissions (Wang et al., 2016; Trezeciak et al., 2016). Additionally, data supported that 4- and 5-star hospitals were more likely to be small, nonteaching, and located in small rural towns in the Midwest (Wang et al., 2016).

In contrast, global ratings of outpatient services may not always be an accurate indicator of quality. Chang et al. (2006) utilized CAHPS survey questions to assess whether patient-reported data was related to technical quality of care. The study collected data over a 13-month period from two managed care organizations where Medicare beneficiaries were cared for. The authors found that better communication was associated with higher global ratings, but technical quality of care was not associated with the global rating of care (Chang et al., 2006). However, the study was limited to only two organizations, which could have placed a limit on finding relatability. Noted by several researchers (e.g. Albright et al. 2016; Kirby et al., 2010; Herrin et al., 2015; McWilliams et al. 2016) regional differences and facility size has been proven to have an effect on patient experience measurements and outcomes.

Fenton et al. (2012) & Boulding et al. (2011) conducted a cohort study measuring the relationship between patient satisfaction and health care utilization, expenditures, and

outcomes. The prospective study assessed satisfaction using items from the CAHPS survey from a national subsample collected across multiple performance years. The authors found that higher patient satisfaction was associated with less emergency department use and fewer readmissions; however, Fenton et al (2012) identified higher patient satisfaction scores being associated greater inpatient use, higher overall health care and medication costs, and higher mortality (see Table 1). Although results were significant, it is important to note that patient satisfaction is not the same measurement as CAHPS *measure 3: patients'rating of doctor.*

access to specialists and readmissions

Medical technology has been a driving force behind an increase in specialists (Shi, 2012). While most Medicare recipients have access to specialists, many enrollees in private plans may have better financial access to care. Safran et al. (2002) analyzed access to care as a performance measurement for Medicare beneficiaries who had care choices between traditional fee-for-service specialists and Medicare HMO specialists. Findings showed that Medicare beneficiaries with the financial means to access specialists were less likely to utilize emergency department services as they experienced differing levels of quality across various managed care models when compared to Medicare beneficiaries who were strictly on a traditional fee-for-service plan (Safran, et al., 2002).

Joynt & Jha (2011) analyzed data from Medicare patients with heart failure discharged from US hospitals in 2006 and 2007. Data showed that patients who were discharged from small hospitals (28.4%) had higher readmission rates than those

discharged from large hospitals (25.2%, P<0.001) (Joynt & Jha, 2011). The number of nursing staff and offered cardiac services played significant roles in the number of readmissions the hospitals reported. Large hospitals were more likely to have the resources to employ the appropriate number of personnel (Joynt & Jha, 2011). Findings outlined the importance of joint efforts across facilities in order to improve the quality of care, as fewer resources and personnel constraints have been indicators of lower performance in smaller facilities.

Jencks et al. (2009) analyzed a total of 13,062,937 Medicare claims from 2003-2004 to describe patterns of readmissions in relation to patient demographics and characteristics of hospitals. In the case of 50.2% of the patients who were readmissions within 30 days, there was no bill for a visit to a primary care provider office between inpatient discharge and readmission; furthermore, 70.5% of readmissions were for medical conditions that required a specialist follow-up (Jencks et al., 2009). Epstein et al. (2014) used national Medicare data to explain that a high percentage of readmissions were accounted for by regional variations in the number of cardiologists per capita; however, no patient experience data was utilized within the study, which may have provided additional insight.

Health promotion, education, and readmissions

Fellows (2013) stated that what a patient wants is communication, knowledge of their condition, and coordination between the different echelons of care to make sense of a good outcome, which is why many hospitals and health systems are looking to outpatient care and new patient experience initiatives to lead financial growth going forward. As cited in Fellows

(2013), according to a Health Leaders Media Survey, improving the patient experience is among the top three priorities that health care organizations want to achieve. However, clinical outcomes may still be the most important measurement to consider when assessing quality care.

Montero et al. (2016) examined the impact of a quality improvement project focused on reducing oncology patients who were admitted to palliative and general medical oncology services at a Cleveland Clinic. For the study, baseline data was gathered between January 2013 to April 2014, while at the same time, quality initiatives were designed to properly education patients and improve outpatient care transitions (Montero et al., 2016). Prior to the baseline period, there were 2,638 admissions and 722 unplanned 30-day readmissions, which resulted in an overall readmission rate of 27.4% (Montero et al., 2016). During the study and implementation period, readmission rates declined by 4.5%, suggesting an annual cost savings of $1.04 million with the observed reduction in unplanned readmissions (Montero et al., 2016).

Phillips et al. (2004) conducted a meta-analysis on discharge planning by compiling 18 studies from eight countries. Researchers randomized 3,304 elderly patients with cardiac-related conditions who were exposed to post-discharge planning to a similar number of patients not exposed to discharge planning across multiple inpatient hospitals. Findings revealed that facilities offering discharge planning were able to more frequently reduce the length of inpatient stay, provide lower costs, and reported lower readmissions (Phillips et al., 2004).

Haynes et al. (2002) observed that improving medication adherence, multidisciplinary communication, and standardizing follow ups through patient-centered

approaches, such as regimen education, enlisting social support, developing rewards and recognition programs, and simple automated reminders, significantly improved long-term health outcomes, reduced inpatient visits, and decreased readmissions. Multiple strategies cited by Haynes et al., where implemented by Moseley et al. (2017) as an initiative to reduce readmissions for patients with heart failure. Prior to the programs implementation the 30-day readmission rate was 22.5%, whereas post implantation the rate statistically decreased to 16.6% (Mosely et al., 2017). Even as a single intervention, patient education has been documented as a method for decreasing readmissions (Dadosky et al., 2016) (see Table 1).

Shared decision making and readmissions

Shared decision making has the potential to provide benefits for patients and providers, including increased patient knowledge, improved outcomes, less variation in procedure costs, and greater alignment of care (Lee & Emanuel, 2013; Roseman et al., 2013). For instance, Schaffer et al. (2017) investigated the effect of shared decision making in low-risk patients being treated for chest pain. Commonly, patients are frequently admitted for observation and cardiac testing, resulting in burden and cost to the patient or health system (Schaffer et al., 2017). Between the trial group and control group, there was a significant difference in length of stay, number of tests, and type of tests conducted, which overall resulted in lower hospital bills for the trial group; furthermore, after 45-days, worsening outcomes leading to emergency department visits were less frequent for the trial group (Schaffer et al., 2017).

Proper collaboration between patient and provider has also been an important element in medication adherence. Ratanawongsa et al. (2013) measured the importance of shared decision making for refill adherence in 9,377 diabetes patients. Compared with patients offering higher CAHPS ratings, patients who gave lower rating for shared-decision making were more likely to have poor secondary adherence to current and new medication regimens (Ratanawongsa et al., 2013). Rosen et al. (2017) studied whether patient medication adherence predicts readmissions within 30 days. Results identified patients with low and intermediate adherence had readmission rates of 20.0% compared to a readmission rate of 9.3% for patients with high adherences (P=.005).

In contrast, Shortell et al. (2017) conducted research in two large ACOs where patients with diabetes or cardiovascular disease were being treated. Specific shared-decision making activities were created to stimulate patient engagement over the ACOs 16 practices. Key findings from the study outlined that having a patient-centered culture was positively associated with fewer depression symptoms, better physical health, and better social health functioning; however, coordination and shared decision making activities as reported by ACOs were not associated with higher patient reported outcome scores (Shortell et al., 2017).

Health status/ functional status and readmissions

Jencks et al. (2009) reported that most readmissions are related to top medical diagnoses, specifically heart failure and pneumonia, which require frequent monitoring and outpatient visits. Previously noted by Herrin et al. (2015), the strongest measurement

associated with patients discharged and readmitted for acute myocardial infarction, heart failure, and pneumonia was limited access to care.

Gebhardt et al. (2013) identified clinical variables related to patient experience in an inpatient treatment setting. In this qualitative study, Student t-test and Pearson correlations were performed after the Global Assessment of Functioning Scale (GAF) was administered at admission and discharge. Because experience can be dependent on symptom severity, functioning at discharge, pharmacologic disturbances during treatment, or the discharge group, the researchers concluded that the primary aim on an inpatient treatment should focus on symptom relief and reduction of adverse side effects, which improved patient experience due to employee performance (Gebhardt et al., 2013). Smith (2014) compared hospitals with established quality improvement programs to hospitals without quality improvements programs and found that hospitals with quality improvement programs established had significantly higher HCAHPS scores, which contributed to higher patient satisfaction scores, not higher health/functional status scores. Findings from Gebhardt et al. (2013) and Smith (2014) may suggest standardized treatment models, like ACOs, have the ability to provide more consistent positive patient experiences and better outcomes compared to traditional models.

Chronic illness care management can be complex amongst a series of providers and services. Peikes et al. (2009) identified how patients with chronic conditions contribute to 70% of Medicare spending. To determine if better coordination would help reduce spending, researchers piloted a meta-analysis of 15 randomized trials, where selected conditions included congestive heart failure, coronary artery disease, and

diabetes (Peikes et al., 2009). Through Medicare grants, the coordination program established test sites where chronically ill patients received help arranging resources for discharge, communicated more frequently with caregivers, and had a better understanding of their conditions. Findings showed that patients who participated in the care coordination program had a more thorough understanding of their disease, medication routine, and support system that aided with follow up questions (Peikes et al., 2009).

Because chronically ill patients represent Medicare's largest patient category in both volume and expense, it is important to track their experience and outcomes (Anhang Price et al., 2014; Boulding et al., 2011). Elliot et al. (2013) found that enrollees who died within 1 year of CAHPS survey completion reported slightly better care experiences attributed to access and drug coverage when compared to enrollees who were not identified near-end-of-life group reporting (see Table 1). Authors noted that analyses were primarily adjusted for health status and geographic location.

Literature Review Summary

Aligning with national priorities, MSSP ACOs are an incentive-based model, whereby performance is measured by CAHPS surveys that combine patient experience measurements, clinical outcomes, and care coordination metrics. ACA's approaches to improve the quality of care are in nascent stages; however, useful patient experience data is available to examine whether provisions are making definitive progress (Abrams et al., 2015). The MSSP ACO model focuses on evidence-based medicine and includes a system's approach towards improving the patient experience, improving population

health, and containing care costs. However, despite the attention that patient surveys have gained, little research has focused on improvements due to the neglect of feedback. Patient evaluation and feedback create opportunities for improvement in the healthcare system (Al-Abri & Al-Balushi, 2014).

After reviewing the literature, identification of new casual pathways between patient-reported measurements and readmission rates are becoming more prevalent. For instance, literature has shown that increasing access to outpatient care (e.g. Whitaker et al., 2016), having access to specialists (e.g. Jencks et al., 2009), and improving health education (e.g. Montero et al., 2016) reduces the number of ED visits and readmissions. Additionally, non-casual pathways that may not be directly observable as quality indicators to patients are also becoming recognized (Anhang Price et al., 2014). For example, the patient perception of provider communication and alignment is a structural observation of an organization, which has become associated with the readmission rate (Maeng et al., 2013) However, there is variation within the literature. In contrast to Whitaker et al. 2016, Nyweide et al. (2015) & Fenton et al. (2012) concluded that a reduction in inpatient stays and ED visits did not translate to an increase in outpatient visits. And while many scholars (e.g. Glover et al., 2015; Wang et al., 2016; Trezeciak et al., 2016) identified an association between patient ratings, readmissions, and mortality rates, Chang et al. 2006 found no association between the technical quality of care and patient global rating of care.

Policy implementation gaps. The Centers for Medicare and Medicaid Services have acknowledged that evidence-based care coordination supports improved health care

(Cipriano, 2012). The implications associated with ACO providers infer that patient experience should be enhanced with greater communication channels, CAHPS scores should improve, and readmission rates should decrease. Linking Medicare payment to patient experience, as measured by CAHPS, has been an area of debate since established by the ACA. As new incentive-based models emerge, the first gap to address is does the policy achieve its purpose? Since the start of MSSP ACOs, has there been an improvement in patient experience ratings and a decrease in readmission rates? These questions need to be addressed to validate whether new policy is achieving ACA established goals.

Research question gaps. According to Bertakis & Azari (2011), the relationship between patient-centered care and healthcare outcomes are not understood; furthermore, the affect that improving patient experience has on reducing readmissions is less understood. Although some studies have shown that ACOs can reduce costs and improve care, there is a need to develop a firm understanding of how new care models and measurements are reaching newly set standards that earn for performance instead of volume. A full measure of the affect MSSP ACOs have on improving patient experiences and reducing readmissions is premature and requires data to be examined critically (Abrams et al., 2015). Few studies have determined whether an association exists between outpatient experience ratings and inpatient readmission rates among MSSP ACOs; therefore, skepticism has developed as patient experience data is now tied to reimbursement rates (Manary et al., 2013). Because different researchers have found inconsistent results with most of the patient measurements, I intended to increase the

understanding between the CAHPS patient experience domain and readmission rates. Differences in previous research (e.g. Walker & Mora, 2016; Glover et al., 2015; Joynt & Jha, 2011; Jencks et al., 2009) has revealed the importance of controlling for variables such as, region of care, performance year, and number of beneficiaries. This study adds to the body of literature surrounding the unknown relationship between patient experience and quality as an outcome in MSSP ACOs.

Definitions

Medical Shared Savings Program Accountable Care Organizations: Care model consisting of providers, hospitals, and other health care professionals that bring together coordinated high quality and cost-effective care to patient populations. This delivery system encourages coordinated care that mitigates delivery gaps or duplicative care yielding better outcome for lesser costs (CMS, 2014b).

Consumer Assessment of Healthcare Providers and Systems (CAHPS) Survey: A standardized survey that follows scientific principles in design and development to reliably assess the experiences of a large sample of patients. It is comprised of 4 quality domains that align with the National Quality Strategy representing the patient/caregiver experience, care coordination, preventative health, and strategy goal for better care (Adams, Brown, & Giordano, 2017)

Number of beneficiaries: Variable that distinguishes the size of each MSSP ACO by the number of Medicare beneficiaries enrolled at a specific facility, where small organization will are classified by enrollment of up to 15k beneficiaries, medium

organizations classified by enrollment between 15001- 30k beneficiaries, and large organizations by enrollment between 30001-136k beneficiaries.

Medicare: Federal health insurance program for people 65 years or older, people under age 65 with certain disabilities, and individuals with end-stage renal disease (CMS, 2014b).

Medicare service region: One of several areas defined by law in the United States, including Northeast, Midwest, South, and West.

Northeast region: Region including Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Pennsylvania, New York, and New Jersey.

Midwest: Region including Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

South: Region including Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, District of Columbia, West Virginia, Delaware, and Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas.

West: Region including Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, and Washington.

Patient experience: An indicator of care that measures any process observable by patients, including both direct and indirect, clinical and non-clinical, interactions between the patients and care givers (Wolf et al., 2014).

Provider: Under federal regulations, medical provider is defined as a doctor of medicine or osteopathy, podiatrist, dentist, chiropractor, clinical psychologist,

optometrist, nurse practitioner, nurse-midwife, or a clinical social worker (Code of Federal Regulations, 2012)

Readmission: Hospitalization to an acute care hospital that occurs within 30 days of the initial admission discharge date (Horwitz et al., 2011).

Assumptions

One assumption was that the CAHPS survey stands as an accurate measurement for collecting patient data. Additionally, it was assumed that region, beneficiary number, and performance year were covariates that would reduce potential errors from confounding variables, such as race, primary language, and service line which can all play a role in levels of patient experience (O'Malley et al., 2005). Another key assumption for the study was that MSSP ACOs provide a framework appropriate for analyzing the interplay between variables and covariates. The National Committee for Quality Assurance (NCQA) asserts that many hospital readmissions may signal unsatisfactory care throughout treatment, which can be prevented by improving the patient experience (National Committee for Quality Assurance, 2012).

Scope and Delimitations

The scope of the study was descriptive with conclusions being subject to possible differences across the four Medicare regions of service in the United States. The study involved the Medicare beneficiary subpopulation of persons residing in those states. Furthermore, MSSP ACOs residing in separate regions were split apart by the number of beneficiaries they serve. Lastly, data was only be collected from MSSP ACOs that were operational during the 2013, 2014, and 2015 performance years.

Study Boundaries

Although many other models operate and report as incentive-based models to CMS, those models were not incorporated into this analysis. Comparing data from a variety of models allows confounding variables to potentially skew results of accuracy and validity. Additionally, no patient experience data was analyzed from acute care facilities. CAHPS surveys are strictly subject to Medicare beneficiaries and control for case-mix variables, whereas HCAHPS surveys are provided to all adult patients, not only Medicare beneficiaries. For this reason, only CAHPS data will be analyzed.

Generalizability and Scope

The generalizability of this investigation was limited to Medicare's Northeast, Midwest, South, and West service regions. The scope of this study was on the patient experience CAHPS domain and the all condition readmission rate, to include region, beneficiary number, and performance year as covariates. Medicare beneficiary data prior to MSSP ACO implementation was not analyzed.

Significance of the Study

Despite the increasing role of patient experience and quality reporting standards, there has been no consensus of legitimacy in quality assessment (Manary et al., 2013). Additionally, the definition of patient experience and quality of care is not fully understood among healthcare organizations, which are both tied to patient expenditures (Bertakis & Azari, 2011). Kern et al. (2013) was the first study to use CAHPS surveys to measure patient experience in the PCMH. After a thorough literature review, no studies indicated the use of CAHPS surveys to measure patient experience in MSSP ACOs;

furthermore, no studies examined the relationship between patient experience and readmission rates in MSSP ACOs. This may have been one of the first studies to measure CAHPS data to examine whether a relationship exists between patient experience ratings and readmission rates in MSSP ACOs. Patient experience data could be used to drive improvements in care at national and local levels (Beattie, Murphy, Atherton, & Lauder, 2015). Linking outcomes to patient experience is a significant measure that may provide useful information regarding how patient-centered models are related to the quality of care. Since the Medicare beneficiary population is predicted to increase dramatically along with costs, providing transparency to the significance and effectiveness of new mandates could become an important factor when future strategic decisions need to be made that ensure the sustainability of the U.S. Medicare program.

Significance to Theory

General System Theory (GST) was the theoretical basis for this study. According to Cordon (2013), one of the most important attributes of GST is the ability to change and adapt. In care today, being able to change and adapt highlights the importance of resiliency towards achieving quality in care. Applying GST principles to health care can connect both observation and outcome. Tying theory and practice together reasserts and validates the initial foundation of the theory. Understanding the elements of care to achieve equilibrium provides credibility to the GST.

Significance to Practice

Linking patient experience with reimbursement rates has brought concern to providers and administrators. Much skepticism comes from whether patient experience is

related to quality outcomes. Organizations are at risk of a negative operating margins due to patient experience scores, which accounts for 25 percent of Medicare reimbursements (AHA, 2010). Regardless, specific to Medicare beneficiaries and new patient-centered models, health organizations and provider groups must meet new patient performance standards to earn maximum reimbursements and reduce health costs (USDHS, 2011). Identifying a relationship between patient experience measures and patient readmissions may help validate the importance of patient-centered models as an important first step towards addressing the mechanisms that can improve the quality of care. Additionally, it may highlight the effectiveness Triple Aim principles have on stimulating positive social change through patient-centered care models.

Significance to Social Change

Medicare beneficiaries represent the largest share of total readmissions and associated costs in care (Mansukhanim et al., 2015). Reducing readmission rates has become one of the most important metrics to address for MSSP ACOs as they care for a growing population of over 23.5 million Medicare beneficiaries (Blackstone & Fuhr, 2016). According to Sultz & Young (2011), by 2050, 30% of the U.S. population will be Medicare beneficiaries, representing the fastest growing patient population. Without intervention, the cost, quality, and accessibility of care will be a major issue. Demonstrating an association between patient experience and readmission rates may reiterate the importance of adherence to ACA policy and CMS guidelines. As evidence-based medicine supports clinical outcomes, connecting new patient experience efforts to improved outcomes becomes a relevant gap to fill. According to McIIvennan, Eapen, &

Allen (2015) hospitals with higher admission and readmission rates, which discharged nearly 85% of Medicare patients, incurred a mortality rate that was 3.4% higher than hospitals with lower admission and readmission rates.

Summary

This section included a review of the literature associated with health reform and the specific mandates that followed. I identified national goals associated with improving the patient experience and reducing the readmission rate as well as the new role of MSSP ACOs. Furthermore, I justified the application of the GST as the theoretical framework, highlighting how external and internal forces within care are striving for equilibrium. Additionally, I discussed the gap in current literature, important takeaways from previous studies, and justified the need to conduct this study. The next section presents the methodology and design that was used in the study.

Section 2: Research Design and Data Collection

In the previous section, I reviewed the current literature on U.S. health reform, with an emphasis on transforming Medicare from a volume based to a value based delivery system. In order to deliver greater value to patients and reduce health costs, Medicare has incentivized performance by rewarding organizations for improving patient experience, care coordination, and delivery outcomes. Using a newly developed model, founded upon IHIs Triple Aim philosophy, MSSP ACOs adhere to guidelines established to address health reform mandates. In the literature review, I identified health reform mandates that seek to impose patient-centered care as a means to improve the patient experience and care outcomes- especially readmissions. While multiple researchers have explored the importance of controlling covariates, such as delivery model type, sample size, demographics, and measuring various performance years as a way to reduce variance and improve validity, few studies have verified whether a relationship exists between patient experience and readmission rates. In this section, I present the specifics of the research design, sample, and analytical tools used to address the gap in literature.

Research Design and Rationale

The purpose of this quantitative correlational study was to determine if the all condition readmission rate was related to the CAHPS patient experience domain in MSSP ACOs when controlling for performance year, region, and number of beneficiaries. A quantitative nonexperimental design was suitable for this study because the research goal was to gather information on the effect patient experience measurements have on readmission rates. A quantitative design aided in identifying the extent of the relationship

between patient experience scores and readmission rates throughout MSSP ACOS. For this study, I used a descriptive, correlation, and a multiple regression model was utilized to explain the relationship between all condition readmissions and patient experience domain measurements while controlling for region, number of beneficiaries, and performance year.

As I noted in Section 1, several researchers have demonstrated the appropriateness of utilizing multiple regression modeling to identify fluctuations in readmission rates and patient satisfaction measurements; however, few have used the CAHPS patient experience domain as a variable. Because the patient experience domain, as a census measurement, is similar to patient satisfaction scores, using a similar methodology was a viable design.

Research Questions/Hypotheses

I developed the following research question and associated hypotheses for this study:

RQ1: To what extent, if any, is the all condition readmission rate related to the CAHPS patient experience domain when controlling for performance year, region, and number of beneficiaries?

$H_0$1: The all condition readmission rate is not related to *ACO measure 1: getting timely care, appointments and information*, when controlling for performance year, region and number of beneficiaries.

H_a1: The all condition readmission rate is related to *ACO measure 1: getting timely care, appointments and information*, when controlling for performance year, region and number of beneficiaries.

$H_0$2: The all condition readmission rate is not related to *ACO measure 2: How well your providers communicate,* when controlling for performance year, region and number of beneficiaries.

H_a2: The all condition readmission rate is related to *ACO measure 2: How well your providers communicate,* when controlling for performance year, region and number of beneficiaries.

$H_0$3: The all condition readmission rate is not related to *ACO measure 3: patients' rating of provider*, when controlling for performance year, region and number of beneficiaries.

H_a3: The all condition readmission rate is related to *ACO measure 3: patients' rating of provider*, when controlling for performance year, region and number of beneficiaries.

$H_0$4: The all condition readmission rate is not related to *ACO measure 4: access to specialists*, when controlling for performance year, region and number of beneficiaries.

H_a4: The all condition readmission rate is related to *ACO measure 4: access to specialists*, when controlling for performance year, region and number of beneficiaries.

$H_0$5: The all condition readmission rate is not related to *ACO measure 5: health promotion and education,* when controlling for performance year, region and number of beneficiaries.

H_a5: The all condition readmission rate is related to *ACO measure 5: health education and promotion*, when controlling for performance year, region and number of beneficiaries.

$H_0$6: The all condition readmission rate is not related to *ACO measure 6: shared decision making*, when controlling for performance year, region and number of beneficiaries.

H_a6: The all condition readmission rate is related to *ACO measure 6: shared decision making*, when controlling for performance year, region and number of beneficiaries.

$H_0$7: The all condition readmission rate is not related to *ACO measure 7: health status/ functional status*, when controlling for performance year, region and number of beneficiaries.

H_a7: The all condition readmission rate is related to *ACO measure 7: health status/ functional status*, when controlling for performance year, region and number of beneficiaries.

Study Population and Sample Size

The target population for this research was MSSP ACOs that delivered care to Medicare enrolled beneficiaries. I used the CMS database was used to analyze consecutive data from 216 MSSP ACOs from the year 2014 to 2016. MSSP ACOs represented the main unit of analysis. Annually, the CAHPS for MSSP ACOs survey data coordination team draws a sample of 860 fee-for-service beneficiary surveys from each participating MSSP ACO (CAHPS, 2017). Sampling procedures excluded individuals residing in group homes, nursing homes, or other institutionalized care environments. To account for an organizations general population, beneficiaries are sampled for the survey so that one quarter of the population represents high users of care, while the remaining population represents those who are not high users of care (CAHPS, 2017). The survey

does not exclude beneficiaries based upon location, age, education, overall mental and physical health, ethnicity, race, language, or pre-existing diagnoses; however, case-mix adjustments are made, so that organizations can be weighted equally to national averages (CAHPS, 2017). The sampling frame includes (a) Medicare beneficiaries who completed CAHPS for ACOs survey, (b) enrolled in a MSSP ACO, (c) survey years 2014-2016, and (d) all races and ethnicities.

Secondary Data Analysis Methodology

I retrieved archival CAHPS data was retrieved from the CMS database, which was collected and coded into Excel. No individuals or hospitals were asked to participate. I used a quantitative multiple linear regression data analysis technique. *ACO measure 1: getting timely care, appointments, and information; ACO measure 2: how well your providers communicate; ACO measure 3: patients' rating of doctor; ACO measure 4: access to specialists; ACO measure 5: health promotion and education; ACO measure 6: shared decision making; and ACO measure 7: health status/functional status* were the patient experience domain measurements I analyzed alongside the unstandardized *all condition readmission rate (per 1000),* when controlling for performance year, number of beneficiaries, and Medicare region (CAHPS, 2017).

Sample Size Calculations

Sample size was extrapolated using excel and SPSS from CMS MSSP ACO performance years 2014, 2015, and 2016. In order to eliminate variation among MSSP ACO organizations, I ensured that each MSSP ACO was operational on or prior to performance year 2014 and active through performance year 2016.

Power Analysis

I used G*Power, a free power analysis calculator, to conduct sample size analysis. Based on the power analysis the required sample size for the linear regression analysis was (power=.8005600; alpha= 0.05; odds ratio= .02), as shown in Table 1. This sample was completed using G*Power calculator for multiple linear regression analysis. The effect size of the odds ratios was retrieved from G*Power's linear regression analysis priori functional. I used the number of predictors within the research study to assist in determining the required sample size. This power calculation (395) of the multiple linear regression modeling was lower than the actual sample size (732) of the data set. The power analysis indicated that there were more than enough cases in the data set to detect an effect for the utilized variables.

Table 2

*Linear Regression Sample Size Calculation Using G*Power*

Input:	Tail (s)	Two
	Effect Size f^2	0.05
	Power (1-β err prob)	0.8
	Number of predictors	14
Output:	Df	380
	Total Sample Size	395
	Actual Power	.8005600

Data Collection and Management

I used archival MSSP ACO CAHPS survey data from the CMS. The data included the following fields from three consecutive performance years 2014 to 2016: ACO name, ACO state, initial ACO start date, number of assigned beneficiaries,

readmission rate per 1000 admits, and performance scores from experience measures 1-7. The archived dataset is available to the public, and the data is de- identified with no personal identification to any patients. My research was approved by the Walden University Institutional Review Board (IRB). The acquired non-confidential data was stored on my personal computer.

Variables

Seven independent and one dependent variable were examined in this study. The all condition readmission rate (per 1000) was the dependent variable, while patient experience measurements, *ACO measure 1: getting timely care, appointments, and information*; *ACO measure 2: how well your providers communicate*; *ACO measure 3: patients' rating of doctor*; *ACO measure 4*: *access to specialists*; *ACO measure 5: health promotion and education*; *ACO measure 6: shared decision making*; and *ACO measure 7: health status/functional status* are the patient experience domain measurements were the independent variables. Additional independent variables I used as study covariates were region (Northeast, Midwest, South, and West), performance years 2014-2016, and number of Medicare beneficiaries, where small organization was classified by enrollment of up to 15k beneficiaries, medium organizations classified by enrollment between 15-30k beneficiaries, and large organizations by enrollment between 30-136k beneficiaries. States included in the Northeast Medicare region were Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania. States included in the Midwest Medicare region included Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North

Dakota, and South Dakota. South states included in the Medicare service region are Delaware, Florida, Georgia, Maryland, Virginia, North Carolina, South Carolina, District of Columbia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas. Lastly, Medicare West included, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, and Washington.

Table 3
Dependent and Independent Variables

Dependent Variables	Independent Variables	Covariates
All Condition Readmission Rate (per 1000)	Patient Experience Domain *Measure 1: getting timely care, appointments, and information* *Measure 2: how well your providers communicate;* *Measure 3: patients' rating of doctor* *Measure 4: access to specialists* *Measure 5: health promotion and education* *Measure 6: shared decision making;* *Measure 7: health status/functional status*	Region (Northeast, Midwest, South, and West) Performance Year 2014, 2015, 2016, Number of beneficiaries

Data Analysis Plan

The acquired non-confidential data sets were downloaded into an excel file and stored on my personal hard drive. Paperwork for IRB approval was submitted to Walden University to gain access and conduct the research analysis. Once the IRB approval was received, the data was analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were performed on all variables to report mean and standard deviation; furthermore, a multiple linear regression was conducted to address the RQ. Additionally, the hypotheses composed of receiving timely care, appointments, and information; multidisciplinary communication; patients' rating of provider; access to specialists; health promotion and education; shared decision making; and health status, which were the quality indicators used to evaluate the effects of the all condition readmission rate along with other structure factors, which were (region, performance year, and number of beneficiaries).

The multiple regression model that I used for each quality measure was represented by the following:

$$\check{Y} = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + B_8X_8 + B_9X_9 + B_{10}X_{10}$$

$\check{Y}$ is the dependent variable (all condition readmission rate). *X* represented the independent variables (i.e., X_1 = *receiving timely care, appointments, and information*, X_2 = *multidisciplinary communication*, X_3= *patients' rating of provider*, X_4= *access to specialists*, X_5= *health promotion and education*, X_6= *shared decision making*, and X_7=*health status/functional status*) and the covariates (i.e., X_8= region, X_9 = performance

year, and X_{10} = number of beneficiaries). B_0 represented the constant of the dependent variable, and B_1 to B_{10} is the regression coefficients for each of the independent variables.

Rationale for Covariate Inclusion

Studies reviewed within the literature identified the importance of accounting for potential covariates that contribute to study findings. For example, Kern et al. (2013) conducted the first longitudinal study using CAHPS data to show patient experience reviews improved over consecutive performance years. The ability to analyze consecutive performance years helped to validate the study findings as the data was reproducible and supported trend. Vest et al. (2010), stated that the varying level of definitional variables, gaps, and methodological inconsistencies among readmission rate research are the most common factors leading to result variation. In order to compensate for variation, defining potential confounding variables such as an organizations number of assigned beneficiaries, regional location, and active performance years were important to consider (Vest et al., 2010).

Threats to Validity

External Validity

MSSP ACOs used in this study originated from secondary data. Regardless of CMS requirements, MSSP ACOs may operate distinctly different from neighboring MSSP ACOs in terms of policies and procedures they follow. In addition, physicians and other medical staff may have different approaches in evaluating and treating patients. Individual identity may have posed a threat to external validity as methods that work well in one organization may not work well in another. The inability to account for all

variables within research, such as differing approaches to treatment and care, produce external threats to research validity.

Internal Validity

Differing patient diagnoses is an identified threat to the validity of patient survey research. Treatment quality and condition severity are highly subjective in nature between patients, which is why patient satisfaction measurements often receive criticism; however, patient experience data has evolved to address the underlying attributes that often result in higher satisfaction. For example, ACO patient/caregiver *measure 1: Getting Timely Care, Appointments, and Information,* is a patient experience survey question that is more objective and focuses on a smaller piece of care without deluding an entire visit. Regardless, differing diagnoses will require separate amounts of information and degrees of attention. When controlling for region, number of beneficiaries, and performance year, a patient with a diagnosis that requires frequent appointments and information may not receive timely care, appointments, and information regularly because of high demand, whereas a patient with a less severe condition may receive appointments and necessary information because their demand is low and easy to accommodate. Each patient comes from the same pool of data because of controlled covariates, but are likely to respond differently on patient experience *measurement 1*.

Construct Validity

Data and statistics are only as good as the quality of reported data. Because there are numerous vendors administering and reporting CAHPS surveys for MSSP ACOs, there exists potential for error on multiple levels. In order to safeguard against potential

inaccuracy and increase statistical validity, data was pulled from all MSSP ACO organizations that met the research criteria of being operational during all defined performance years. Analyzing the greatest sample size over consecutive years mitigates possible variations. Manary, Boulding, Staelin, & Glickman (2013) performed an in-depth literature review to examine value using patient-reported experiences as measures of quality of care. The objective was to highlight the potential reasons for inconsistent research that has been published based off patient-reported experiences and patient outcomes. The study began with identifying three consistent problems surrounding the importance of patient experience as a reported measure. Manary et al., (2013) asserted that: (a) patients do not possess the formal medical training; therefore, feedback on quality is not a valid metric; (b) healthcare is a service and instruments used to identify patient satisfaction may not be appropriate for technical care; and (c) patients may base their opinions on the fulfillment of personal desire, which is inconsistent with whether the service is truly required or not. Furthermore, Manary et al. (2013) explained that patients could focus on specific events or visits when reporting experiences and may be more inclined to describe patient-provider interactions; moreover, timeliness of data collection after a visit can add to confounding factors that relate to contrasting results. Therefore, controlling for confounding factors such as diagnoses, age, region, or type of delivery system produced more reliable results.

Protection of Participants' Rights

All patient specific information is protected and is de-identified before being reported to CMS for publication. Since the data was de-identified, there were no risks for

the disclosure of confidential or private information in any dataset. The dataset was stored on a personal computer, and then deleted upon completion to avoid any accidental data breach. For ethical purposes, Walden IRB oversaw the analysis and results write up.

Summary

This chapter described using a secondary dataset to conduct a quantitative correlational study to determine if there was a correlation between the all condition readmission rate (per 1000) and patient experience domain within MSSP ACOs. The study design portrayed a rational and description of the population investigated, source of the data, data collection procedure, and data analysis strategy and techniques. While section 2 included the suggested methodology used in the doctoral study, section 3 provides the findings relative to the RQ.

Section 3: Presentation of the Results and Findings

The purpose of this quantitative, correlational study was to investigate the relationship, if any, between the all condition readmission rate and CAHPS patient experience domain among MSSP ACOs when controlling for performance year, region, and number of beneficiaries. The CAHPS (2017) patient experience domain made up the continuous independent variables and is comprised of *ACO measure 1: getting timely care, appointments, and information; ACO measure 2: how well your providers communicate; ACO measure 3: patients' rating of doctor; ACO measure 4: access to specialists; ACO measure 5: health promotion and education; ACO measure 6: shared decision making*; and *ACO measure 7: health status/functional status* are the patient experience domain measurements (CAHPS, 2017). The dependent variable was the unstandardized all condition readmission rate (per 1000; CAHPS, 2017). Section 3 includes results of the statistical analysis (multiple linear regression) of data collected from the CMS statistics and results database. I provide brief descriptions of the survey time frame for collection, minor discrepancies in the data sets, descriptive demographics of the sample, representativeness of the sample, and bivariate characteristics and analysis of the sample. The study results subsection includes the results of the multiple linear regression. I conclude with a summary of the results.

Data Collection of Secondary Data Set

I used archival MSSP ACO CAHPS survey data from the CMS database. The data included the following fields from three consecutive performance years 2014 to 2016: ACO name, ACO state, Initial ACO start date, number of assigned beneficiaries,

readmission rate per 1000 admits, and performance scores from experience measurement 1-7. Annually, the CAHPS for MSSP ACOs Survey data coordination team draws a sample of 860 fee-for-service beneficiary surveys from each participating MSSP ACO (CAHPS, 2017). The surveys are averaged for each measurement and each MSSP ACO. The archived dataset was initially comprised of 732 MSSP ACOs. Discrepancies that I found upon receiving the data included, unnecessary weighted categories, duplicates, missing data, and MSSP ACO participation across multiple service regions. Any discrepancies were omitted from the dataset. After data cleaning, a sample of 648 MSSP ACOs remained for measurement. Transferring data to SPSS required recoding of all covariates (i.e. performance year, number of beneficiaries, and region) to formulate data with numeric measures for analysis. Analysis of the CMS data was conducted after I obtained the IRB approval on April 19, 2018. The IRB approval number was 04-19-18-0604531.

Descriptive Demographics of the Sample

Table 4 presents the descriptive statistics of the continuous variables using the sample of 648 cases. The analysis included the dependent variable of all reporting MSSP ACOs readmission rate (per 1000): mean (169.5), standard deviation (26.5), minimum (93) and maximum (268). The analysis also included rates for *ACO measure 1: getting timely care, appointments, and information,* mean (79.9), standard deviation (3.8), minimum (63.31) and maximum (90.58) *; ACO measure 2: how well your providers communicate,* mean (92.5), standard deviation (1.6), minimum (85.31) and maximum (95.60) *; ACO measure 3: patients' rating of doctor,* mean (91.75), standard deviation

(1.61), minimum (86.24) and maximum (95.46)*; ACO measure 4: access to specialists*, mean (83.65), standard deviation (2.5), minimum (69.38) and maximum (89.42)*; ACO measure 5: health promotion and education*, mean (59.48), standard deviation (3.7), minimum (49.19) and maximum (71.82)*; ACO measure 6: shared decision making*, mean (74.9), standard deviation (2.67), minimum (65.73) and maximum (81.26)*;* and *ACO 7: health status/functional status:* mean (71.79), standard deviation (2.3), minimum (63.29) and maximum (77.70). *ACO measure 2: how well your providers communicate*, had the highest mean, whereas *ACO measure 5: health promotion and education*, had the lowest mean.

Table 4

Univariate Characteristics of the Continuous Variables (N=648)

	Mean	Median	Std. Deviation	Min	Max
Readmission Rate (Per 1000)	169.5	169	26.5	93	268
ACO 1: *getting timely care, appointments, and information*	79.9	80.1	3.8	63.31	90.58
ACO 2: *how well your providers communicate*	92.5	92.8	1.6	85.31	95.60
ACO 3: *patients' rating of doctor*	91.75	92.01	1.61	86.24	95.46
ACO 4: *access to specialists*	83.65	83.87	2.5	69.38	89.42
ACO 5: *health promotion and education*	59.48	59.58	3.7	49.19	71.82
ACO 6: *shared decision making*	74.9	75.14	2.67	65.73	81.26
ACO 7: *health status/functional status*	71.79	72.03	2.3	63.29	77.70

Using the sample of 648 cases, Table 5 presents the frequency distributions of the categorical variables. The research study encompassed three consecutive years of 2014, 2015, and 2016. Each performance year accounted for 33.3% (*n*=216) of the total number of cases *(n*=648). Region was categorized into four groups across the United States: Northeast, Midwest, South, and West. The Northeast region represented 29.8% (*n*=193) of the sample; Midwest accounted for 29.8% (*n*=144); South accounted for 34.1% (*n*=221); and the Western region accounted for 19.9% (*n*=90). The study also accounted for organization size distinguished by the overall number of beneficiaries enrolled at each MSSP ACO. Small organizations accounted for 60.3% (*n*=391) of the cases; medium organizations accounted for 23.8% (*n*=154); and large organizations accounted for 15.9% (*n*=103) of the cases.

Table 5

Univariate Characteristics of the Grouping Variables (n=648)

	Frequency	Percent (%)
Performance year:		
2014	216	33.3
2015	216	33.3
2016	216	33.3
ACO Region:		
Northeast	193	29.8
Midwest	144	22.2
South	221	34.1
West	90	19.9
Organization Size:		
Small	391	60.3
Medium	154	23.8
Large	103	15.9

As an unadjusted analysis for association strength and direction, a Pearson correlation coefficient was conducted. Table 6 displays the results of a Pearson correlation between the continuous variables and dependent variable from all cases (*N*=648). The Pearson correlation coefficient indicated a significant negative association between the all condition readmission rate (per 1000) and *ACO measure 2 (r*= -.111, *p*= .005); *ACO measure 3* (*r* = -.121, *p*= .005); ACO *measure* 6 (*r* = -.174, *p*<.001); and *ACO measure 7* (*r* = -.368, *p*< .001). There were nonsignificant correlations between the dependent variable and *ACO measure 1* (*r* = -.073, *p*=.062); and *ACO measure 4* (*r*= -.043, *p*=.277). *ACO measure 5* was the only continuous predictor that had a positive non-significant relationship with the dependent variable (*r*=.045, *p*=.256). However, regardless of significance, the correlations between the all condition readmission rate and continuous variables were weak.

Table 6

Pearson Correlation Coefficients (R) between All Condition Readmission Rate and the continuous variables

Variable	*n*	*r*	*p*
ACO 1: *getting timely care, appointments, and information*	648	-.073	.062
ACO 2: *how well your providers communicate*	648	-.111	.005
ACO 3: *patients' rating of doctor*	648	-.121	.002
ACO 4: *access to specialists*	648	-.043	.277
ACO 5: *health promotion and education*	648	.045	.256
ACO 6: *shared decision making*	648	-.174	.001
ACO 7: *health status/functional status*	648	-.368	.001

Note. n=sample of cases; *r*= Pearson correlation coefficient; *Sig*= Significance p<0.01, two-tailed

Table 7 presents the relationship between each categorical variable and the dependent variable. Performance year had an equal number of cases (216), which constituted a control, whereby the same MSSP ACOs were measured throughout consecutive years. The mean readmission rate was the highest for performance year 2014 was the highest (M=171.52, SD=27.42), followed performance year 2015 (M=169.42, SD=26.34), and then performance year 2016 (M=169.42, SD=25.66). Performance year was not a statistically significant variable (p=.310).

ACOs by region varied in frequency, where the Northeast region represented n=193 MSSP ACOs with a mean readmission rate of (M=170.67, SD=23.53). The Midwest region described n=144 MSSP ACOs with a mean readmission rate of (M=173.02, SD=26.32). The Southern region was representative of the largest number of MSSP ACOs (N=221) and had mean readmission rate of (M=170.40, SD=23.32). The Western region had the lowest number of ACOs (n=90) and also had the lowest mean readmission rate (M=159.30, SD=36.33). Because the descriptive statistics showed variation between the numbers of MSSP ACOs in each region, equal sample sizes were not assumed, so the Welch and Brown-Forsythe robust means tests were selected instead of the Levene's test. The Welch test reported the more conservative significance value (p =.022).

Organization size was categorized by the number of beneficiaries enrolled. Small organizations represented the subcategory with the most MSSP ACOs (n=391) and had the highest mean readmission rate (M=172.4, SD=28.29). Medium organizations (n=154) had the lowest mean readmission rate (M=162.2, SD=25.34). Lastly, large organizations

(*n*=103) represented the subcategory with the least number of MSSP ACOs (M=169.5, SD=17.76). Because equal sample sizes were not assumed, the Welch and Brown-Forsythe tests were selected. Both tests reported the same significance value ($p<.001$)

Table 7

One-way ANOVA between the All Condition Readmission Rate (per 1000) and Categorical Variables

	Total *n*	Mean	SD	Sig.
Performance year:				
2014	216	171.52	27.42	.310
2015	216	169.42	26.34	
2016	216	167.52	25.66	
ACO Region:				
Northeast	193	170.67	23.53	.022
Midwest	144	173.02	26.32	
South	221	170.40	23.32	
West	90	159.30	36.33	
Organization Size:				
Small	391	172.4	28.29	.001
Medium	154	162.2	25.34	
Large	103	169.5	17.76	

Note. *n*=sample of cases; *SD*= Standard Deviation; *Sig*= Significance p<0.01, two-tailed

Study Results

The descriptive analysis justified the need for covariate inclusion. For example, the unequal distribution of MSSP ACOs between the Southern region (n=221) compared the Western region (n=90) may have interfered with result validity if unaccounted for. Similarly, the frequency between facility sizes was an important factor to recognize, as previous research has shown significant differences in readmission rates between large and small facilities (e.g. Joynt & Jha, 2011). This subsection includes the statistical assumptions and results of the RQ.

Research Question

To what extent, if any, is the all condition readmission rate related to CAHPS patient experience domain when controlling for performance year, region, and number of beneficiaries?

Statistical assumptions. Assumptions of multiple regression includes linearity, independence of error, homoscedasticity, multicollinearity, undue influence, and normal distribution of errors (Kline, 2011). The Durbin-Watson statistic, which provides measurement on the independence of error, was analyzed and reported a value of 1.972. As a general rule, value under 1.0 or above 3.0 are considered dangerous and suggests the model suffers from serious serial correlation, whereas a value of 2.0 means there is absolutely no correlation between residuals (Gregoire, 2014). Since a value of 1.972 is close to 2.0, it was assumed the assumption was met.

Next, the variance inflation factor (VIF) was assessed. As a general rule, values close to 10 and definitely above 10 indicate serious multicollinearity in the model, meaning independent predictors have serious correlation between each other (Green & Salkind, 2014). All predictors had values under 2.0, besides the sub variables for region, which all had VIFs under 2.6. Initially, *ACO measure 2* and *ACO measure 3* had VIF values of 4.35 and 5.1, suggesting moderate correlation; therefore, *ACO measure 2* was omitted as a predictor.

Cook's Distance was requested as a diagnostic tool to measure undue influence; or specific outliers that may have undue influence on the model. As a general rule, values of 1.0 or greater, are considered problematic (Gregoire, 2014). After examining cooks distance (min .000; max .021), it was assumed there was minimal undue influence on the model. A histogram was also requested to analyze the distribution of errors. An assumption of multiple regression is the normal distribution of errors. The histogram produced an even distribution, which indicated no significant deviation of normality (see Figure 2).

Figure 2. Histogram of the distribution of errors.

Lastly, a scatterplot was analyzed to measure the assumption of homoscedasticity, or whether our residuals at each level of the predictor are equal in variance. Within the scatter, there was no discernable pattern (see Figure 3). The scatter was also used to assess the assumption of linearity. The scatter depicted evidence of a linear relationship; if not, the scatter may perform a U shaped pattern (Cohen, West, & Aiken, 2013). Based on the linear regression assumptions, all of the rules were met for the analysis.

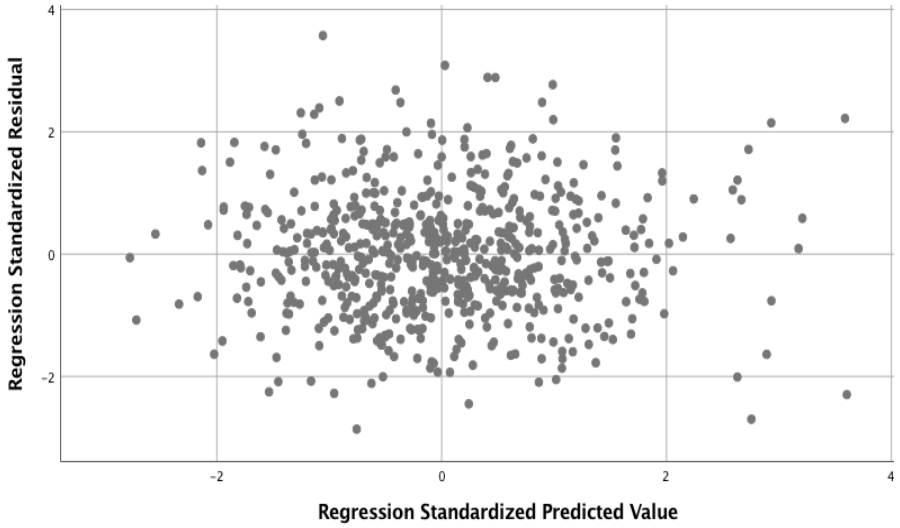

Figure 3. Scatterplot of residuals and predicted values.

Multiple linear regression results. A multiple linear regression analysis was conducted to examine the relationship between the unadjusted all condition readmission rate (per 1000) and the CAHPS patient experience domain while controlling for region, number of beneficiaries, and performance year. Table 8 summarizes the analysis results of all cases (*N*=648), where *ACO measure 1: getting timely care, appointments, and information* was the first predictor entered followed by ACO measure 3: *patients' rating of doctor*; *ACO measure 4: access to specialists*; *ACO measure 5: health promotion and education*; *ACO measure 6: shared decision making*; and *ACO measure 7: health*

status/functional status. The categorical covariate, organization size, was entered first, followed by performance year, and region. The reference categories left out consisted of large organizations, performance year 2016, and Medicare region west. Also omitted was *ACO measure 2: how well your providers communicate,* as it initially produced a moderately high VIF between *ACO measure 3: patients' rating of doctor.*

The multiple regression model indicated that eight predictors were significant to the model, R^2= .242, F(13, 634) 15.59, $p < .001$. Within the patient experience domain, ACO 3 (β = -.100, p =.032); ACO 4 (β = -.084, $p < .001$); ACO 6 (β = -.156, $p < .001$); and ACO 7 (β = -.424, $p < .001$) displayed a significant inverse relationship with the outcome variable (table 8). As reported in table 6, the Pearson *r* showed an inverse relationship between *ACO measure 1* and the dependent variable; however, the multiple regression showed a direct relationship. Potentially, multicollinearity could have influenced the analysis. Regardless, in both analyses, *ACO measure 1* was an insignificant predictor. The only predictor that had a direct relationship with the dependent variable was *ACO measure 5* (β = .144, $p < .001$).

Dummy coding was used for all covariates. Performance year was the first covariate analyzed. The reference category for performance year was performance year 2016. Performance year 2014 was not statistically significant (p = .545) with an unstandardized beta coefficient of 1.860 (95% confidence interval range of -3.3956 – 6.116) compared to the reference region. Performance year 2015 region was not statistically significant (p = .312) with an unstandardized beta coefficient of 2.823 (95% confidence interval range of -2.174 – 6.789) compared to the reference region.

The significant categorical variable was region, which was made up of four subcategories (Northeast, Midwest, South, and West). The reference category for the regression was the Western region. The Northeast region was statistically significant ($p <$ .001) with an unstandardized beta coefficient of 15.917 (95% confidence interval range of 9.695 – 22.144) compared to the reference region. The Midwest region was statistically significant ($p <$ .001) with an unstandardized beta coefficient of 17.841(95% confidence interval range of 11.38 – 24.298) compared to the reference region. Lastly, the Southern region was statistically significant (p = .001) with an unstandardized beta coefficient of 8.041(95% confidence interval range of 2.044 – 14.038) compared to the reference region.

Organization size was the last covariate analyzed. The reference category for organization size was large organizations. Small organizations were not statistically significant (p = .575) with an unstandardized beta coefficient of -1.518 (95% confidence interval range of -6.779 – 3.743) compared to large organizations. Medium organizations were not statistically significant (p = .061) with an unstandardized beta coefficient of -5.602 (95% confidence interval range of -11.436 – .259) compared to large organizations.

Hypothesis test results. There were differences in the patient experience domain after controlling for performance year, region, and organization size. *ACO measure 2* was omitted due to mildly high variance between *ACO measure 3*; therefore, the hypothesis was removed. *ACO measure 1* (β = .074, p =.114) was not significant; therefore, the null hypothesis was accepted. *ACO measure 5* (β = .144, $p <$ .001) displayed a direct relationship with the outcome variables, so as *health promotion and*

education increased, so did the readmission rate. This predictor contradicted the rest of the patient experience measurements. *ACO measure 3* (β = -.100, *p* =.032); *ACO measure 4* (β = -.084, *p* < .001); *ACO measure 6* (β = -.156, *p* < .001); and *ACO measure 7* (β = -.424, *p* < .001), which displayed significant inverse relationships with the outcome variable (table 8). Therefore, the following null hypotheses were rejected:

*H*03: The all condition readmission rate is not related to *ACO measure 3: patients' rating of provider*, when controlling for performance year, region and number of beneficiaries.

*H*04: The all condition readmission rate is not related to *ACO measure 4: access to specialists*, when controlling for performance year, region and number of beneficiaries.

*H*06: The all condition readmission rate is not related to *ACO measure 6: shared decision making*, when controlling for performance year, region and number of beneficiaries.

*H*07: The all condition readmission rate is not related to *ACO measure 7: health status/ functional status*, when controlling for performance year, region and number of beneficiaries.

Answer to the Research Question. The multiple regression model was significant, R^2= .242, *F* (13, 634) 15.59, p < .001. However, the research question was only answered in partial, as variation in the results did not support all hypotheses. Within the patient experience domain, significance and coefficients varied, suggesting the need for further examination (table 8).

Table 8

Multiple Linear Regression: Independent Variables Total Number- 648; R Square- .242

Variable	B Unstandardized Coefficients	Beta Standardized Coefficients	Sig.	95% CI. Lower Bound	95% CI. Upper Bound
ACO 1: *getting timely care, appointments, and information*	.516	.074	.114	-.125	1.158
ACO 2: *how well your providers communicate*	Omitted Variable				
ACO 3: *patients' rating of doctor*	-1.638	-.100	.032	-3.137	-.139
ACO 4: *access to specialists*	-.676	-.084	.041	-1.704	-.035
ACO 5: *health promotion and education*	1.241	.144	.001	.464	1.586
ACO 6: *shared decision making*	-1.652	-.156	.001	-2.353	-.951
ACO 7: *health status/functional status*	-4.982	-.424	.001	-5.737	-4.229
Performance year:					
2014	1.860	.026	.545	-3.396	6.116
2015	2.823	.041	.312	-2.174	6.789
2016 (reference)					
ACO Region:					
Northeast	15.917	.275	.001	9.695	22.144
Midwest	17.841	.280	.001	11.38	24.298
South	8.041	.144	.009	2.044	14.038
West (reference)					
Organization Size:					
Small	-1.518	-.027	.571	-6.779	3.743
Medium	-5.602	-.051	.061	-11.436	.259
Large (reference)					

Note. *Sig*= Significance p<0.01, two-tailed; *CI*= Confidence Interval

Summary

Section 3 presented the results and findings of my doctoral study. This section included the study purpose, data collection schema, results of the descriptive, bivariate, and multiple linear regression analyses of the hypotheses and RQ, and the key findings. This doctoral study examined Medicare data collected from the 2014, 2015, and 2016 CAHPS MSSP ACO database, which enabled analyses of unadjusted all condition readmission rate (per 1000) and patient experience domain, while controlling for Medicare region, performance year, and organization size.

A detailed analysis and interpretation of the results will be the topic of Section 4. The next section serves to overview the interpretations, limitations, recommendations, and conclusions that are relevant to this study. A comparison of findings to the literature and GST is also provided, in section 4.

Section 4: Application to Professional Practice and Implication for Social Change

The purpose of this quantitative, correlational study was to investigate the relationship between the unadjusted all condition readmission rate (per 1000) and CAHPS patient experience domain among MSSP ACOs. Findings from the adjusted multiple regression indicated significant relationships within the patient experience domain, as well as within the categorical variables. However, the strength of the relationships were weak, indicating a need for further study. Because previous researchers found inconsistencies between patient experience measurements and outcomes (including readmissions), my further objective was to investigate the implementation of MSSP ACOs, which use a new patient-centered model, designed to improve the patient experience and reduce the number of readmissions among the Medicare population. Section 4 includes an interpretation of the findings, a review of study limitations, recommendations for further research, and a discussion of implications for professional practice and positive social change.

Interpretation of the Findings

Findings from the adjusted multiple regression analysis indicated that within the patient experience domain, *ACO measure 3: patients' rating of provider; ACO measure 4: access to specialists; ACO measure 6: shared decision making*; and *ACO measure 7: health status/functional status*, significant inverse relationships with the outcome variable were found. ACO measure 5: *health education and promotion*, had significant, but direct relationships with the outcome variable. ACO region and organization size were also

significant covariates. In the following subsection, I compare findings to the literature and to the GST.

Findings to Literature

My findings indicated that as a model, MSSP ACOs, have consecutively decreased readmission rates from performance year 2014 through 2016. This statistic aligned with the findings from Winblad (2017) that showed a gradual reduction in readmissions were noted from year 2007 through 2013. In the following subsections, I present findings broken down by variables and supporting covariates that were significant predictors of the unadjusted all condition readmission rate (per 1000).

Patients' rating of provider. As shown in the literature review, findings in past studies on the relationship between patients' rating of provider and readmissions have been inconsistent. LaVela and Gallan (2014) asserted that patient experience does not reflect clinical outcomes and should not be viewed alongside health care outcomes. To support the assertion, Chang et al. (2006) found that better provider communication and ratings were not associated with the quality of care. However, the study was limited to two organizations. Several researchers (e.g. Albright et al., 2016; Kirby et al., 2010; Herrin et al. 2015; McWilliams et al., 2016) noted that regional differences and facility size are proven confounders that effect patient experience measurements and outcomes. Findings in this study affirmed that regional differences and facility sized are significant controls to account for when measuring readmissions rates. While controlling for region (Northeast, Midwest, South, and West) and facility size by beneficiary population (small, medium, and large), *ACO measure 3: patients' rating of doctor,* was a statistically

significant predictor of the all condition readmission rate. The result of the regression shoed an inverse relationship, so as the unit of measure increased for *ACO measure 3*, the readmission rate decreased.

Access to specialists. The relationship between having access to specialists and experiencing lower readmissions is well documented in the literature (e.g., Safran et al., 2002; Jencks et al., 2009; Epstein et al., 2014). Therefore, my finding of a significant and inverse relationship between *ACO measure 4* and the all condition readmission rate adds more to the credibility of the CAHPS patient experience domain, and to CMS as a secondary data source. Another extension of the findings from *ACO measure 4* that coincided with past literature was the use of covariates (i.e., organization size and region), which showed that patients discharged from small hospitals had higher readmission rates than those discharged from large hospitals due to the number of appropriate personnel and specialists (Joynt & Jha, 2011). In another study, a high percentage of readmissions were accounted for by regional variations in the number of cardiologists per capita (Epstein et al., 2014). I likewise noted variation through initial descriptive analyses, and found region and organization size were also significant predictors of the regression model. Similar to the findings from Joynt & Jha, small organizations had the highest mean value of readmissions compared to medium and large organizations.

Shared decision making. *ACO measure 6: shared decision making*, had a significant and inverse relationship with the all condition readmission rate. The relationship between shared decision making and readmissions has been less explored in

past literature, as researchers have emphasized the importance of shared decision making to greater medication adherence (Ratanawongsa et al., 2013), fewer emergency departments visits (Schaffer et al., 2017), and less variation in procedure costs (Lee & Emanuel, 2013; Roseman et al., 2013) instead of readmission reduction. Noted by Shortell et al. (2017), noted that shared decision making activities conducted in ACOs were not associated with higher patient reported outcome scores. Even though key findings outlined that having a patient-centered culture was positively associated with fewer depression symptoms, better physical health, and better social functioning, patient engagement activities were not an effective way to improve shared decision making scores. Therefore, potential insight into improving shared decision making scores can be gained from Fellows (2013), who noted that what a patient wants is communication with their provider, knowledge of their condition, and collaboration between the different echelons of care.

Health status/functional status. *ACO measure 7: health status/functional status*, was the only significant predictor to have a somewhat mild correlation with the outcome variable. The relationship between greater health status and lower readmissions is well documented; therefore, again the finding adds credibility to the CAHPS patient experience domain and CMS database as a reputable source. Regardless, as a statistic, the measurement can also be a reflection of MSSP ACO quality. Peikes et al. (2009) identified how patients with chronic conditions contribute to 70% of Medicare spending. Chronic illness care management can be complex and often requires quality coordination and communication amongst a series of providers and services. Receiving quality care

can minimize symptoms of chronic illness and provide an individual with greater overall well-being and functionality (Anhang et al., 2014). Elliot et al. (2013) noted, Medicare enrollees who died within 1 year of CAHPS survey completion reported slightly higher experience scores when compared to enrollees who were not identified as near-end-of-life Medicare beneficiaries.

Health education/promotion. As previously mentioned, *ACO measure 5: health education and promotion*, had a significant, but direct relationship with the outcome variable, which was a consistent finding in both the unadjusted correlation and adjusted regression analysis. This finding not only contradicted findings for ACO measure 3, 4, 6 and 7, but also findings from the literature. Discharge planning and transitioning arrangements (Phillips et al., 2002; Montero et al., 2016), reward and recognition programs (Haynes et al., 2002), and regimen education classes (Moseley et al., 2017), are all health education/promotional strategies that have been documented as methods for reducing readmissions.

In effort to help clarify the finding, I reviewed the CAHPS survey content. There are nine supplemental questions that contribute to the mean score for *ACO measure 5*: (1) care team talked about things you could do to prevent illness; (2) care team talked with you about healthy diet and eating; (3) care team talked with you about physical activity; (4) care team talked to you about health goals; (5) care team asked if things make it hard for you to take care of your health; (6) care team talked with you about all prescription medicines; (7) care team asked if you were feeling sad, empty, or depressed; (8) care team talked with you about things you worry about; and (9) care team talked with you

about personal problems, family problems, alcohol and drug use, or mental or emotional illness (CG CAHPS for ACOs, 2012). Comparing the domain measurement to previous literature may represent a limitation of the study; while documented literature has been focused entirely on implementation programs geared toward increased patient education, *ACO measure 5* only represents conversational inquiry. This may indicate that the measurement itself is not an appropriate predictor for this study. Alternatively, the result may also indicate that an increase in patient education contributes to a greater number of readmissions. As patients become more aware of potential conditions and risks, seeking treatment more frequently is logical.

Findings to Theory

The MSSP ACO and CAHPS patient experience domain are subsystems of the overall health system. Similarly, at an extended level, the Medicare all condition readmission rate (per 1000) is part of the overall health system. Researchers have not thoroughly explored the relationship between these entities. Because Ludwig von Bertanlanffy's (1968) general system theory (GST) has extended to health care, as a means of clarifying the different dynamics and structures throughout the system, I deemed it suitable as a theoretical framework for this study. Additionally, according to McCovery and Matusitz (2014), adopting a general system approach to identify the characteristics of the U.S. health system that embody elements of cooperation and collaboration outlines the alignment of policy to an evidence-based practice. To an extent, GST was an ideal framework for connecting the four levels of the health care

systems as depicted by Ferlie & Shortell (2001; see Figure 1). However, as applied to the RQ, GST did not provide a useful predictive explanation.

Summary of Key Findings and Interpretations

Although several researchers (Chang et al., 2006; LaVela & Gallan, 2014) regarded the patients' rating of a doctor to be an insignificant predictor of readmission rates, I recognized limitations of such studies when reviewing findings in other research (e.g., Albright et al., 2016; Kirby et al., 2010; Herrin et al., 2015; McWilliams et al., 2016). After controlling for region and facility size among the Medicare population, *ACO measure 3: patients' rating of doctor*, showed a significant and inverse relationship with the outcome variable. Similarly, *ACO measure 4: access to specialist*, added to the significance of the regression model and had an inverse relationship with the outcome variable, which was well noted within the literature (e.g., Safran et al., 2002; Jencks et al., 2009; Epstein et al., 2014). The significant relationship found between *ACO measure 6*: *shared decision making and* the all condition readmission rate (per 1000), contributed to a limited amount of literature. The predictor has more commonly been explored alongside medication adherence, procedural costs, and emergency department visits (Ratanawongsa et al., 2013; Lee & Emmanuel, 2013; Schaffer et al., 2017). *ACO measure 7: health status/functional status*, added to the credibility of the CAHPS patient experience domain and CMS database. It was also the only predictor that had a semi-mild correlation with the outcome variable. Lastly, *ACO measure 5: health education and promotion*, had the only direct and significant relationship with the outcome variable in both the unadjusted correlation and adjusted regression, which opposed previous studies.

Even though there were significant findings, the relationships were generally weak, prompting the need for further investigation.

Limitations of the Study

There were several limitations in the research data set that influenced generalizability, validity, and reliability of the findings. Due to moderate correlation between *ACO measure 2: how well your providers communicate* and *ACO measure 3: patients' rating of doctor, ACO measure 2* was omitted. Therefore, the research question could not be fully answered, as the null and alternate hypothesis could not be accepted or rejected. Additionally, the questions that contributed to *ACO measure 5: health education and promotion*, were not as direct as the makeup of other measurement questions; therefore, the interpretation of the variable to other studies was difficult to compare, as was its validity to the dependent variable. However, a direct relationship between patient education and readmissions is not illogical, and deserves further inquiry. Lastly, the unadjusted all condition readmission rate (per 1000) does not adjust for patient diagnoses. Although many variable controls are accounted for, diagnoses represents a serious extraneous factor (i.e., confounding variable), as a higher volume of chronically ill patients assigned to an MSSP ACO may predispose the organization to a higher readmission rate.

Recommendations

The limitations of the study reveal potential areas of improvement for future researchers. To extend the research, there is a need for additional studies to strengthen the relationship between patient experience measurements and the readmission rate. Because

Medicare's Midwest region had a noteworthy correlation with the dependent variable, it may be an appropriate scope to initially set. As the scope decreases, adjusting for new covariates or further defining predictors becomes a formidable option. For example, past researchers (e.g. Walker & Mora, 2016; Ryan et al., 2017) have not only looked into patient experience scores, but also measured what quality improvement tools were used by the ACO. This added measurement helped explain variation among readmissions and contributed to the relatability of the experience measurement to other studies. Improving result validity also requires addressing the use of the non-adjusted all condition readmission rate (per 1000). Instead of measuring the readmission rate separately, numerous researchers (e.g. Whitter et al., 2016; Kirby et al., 2010; Shortell et al., 2017; Herrin et al., 2015) analyzed readmissions that preceded emergency department visits. Tracking readmissions through the emergency department enabled researchers to adjust for patient condition, length between readmission and the last outpatient visit, and symptom severity, which were all helpful in distinguishing whether the readmission was preventable (Herrin et al., 2015).

Implications for Professional Practice and Social Change

This section provides recommendations to professional practice and positive social change implications relevant to patient experience and the unadjusted all condition readmission rate (per 1000). Traditionally, health care has been provider-centered instead of patient-centered; however, shifting from volume to value based care has emphasized the implementation of new metrics that measure customer expectations (Vogus & McClelland, 2016). As incentives and penalties surround MSSP ACO performance, this

study, and specifically the literature review, may assist providers and administrators understand the components of performance relative to reducing readmissions.

Professional Practice

Although small provisions toward change may help improve outcomes on some scale, literature has shown that individual interventions are unlikely to significantly reduce readmission rates on a large scale (Kripalani, Theobald, Anctil, & Vasilevskis, 2013). This study demonstrated the ability of small provisions to help improve outcomes on a small scale. Although weak relationships were found between patient experience data and readmissions, the consistency of inverse relationships should not be ignored. From a theoretical perspective, GST asserts that however subgroups of the components are formed, each has an effect on the behavior of the entire entity and none has an independent effect on it (Ferond, 2006). The CAHPS domain has been standardized for evaluating measures that assess care coordination/patient safety, patient/caregiver experience, preventative health, and management of at-risk populations (Blackstone & Fuhr, 2016). Theoretical, methodical, and empirical implications of this study suggest that the patient experience category is only a single, but important piece of what influences hospital readmissions.

As of 2014, MSSP ACOs have reduced readmissions and generated savings that allowed a decrease in patient fees for services (Tu et al., 2015). My study confirmed that the trend in readmission reduction continued through year 2016, which demonstrated a connection between policy and performance. However, patients will continue to feel the burden of steep care costs, as prices are expected to outpace population growth at least

four times from 2017 to 2020 (Lagasse, 2017). Because patients cannot directly control costs, becoming more discerning consumers of quality becomes a priority. National survey data has indicated 1 in 6 Americans consulted reviews of providers and practice groups before selecting a primary care location or health plan (Anhang Price et al., 2016). This means that meeting the expectations of customers, measured through patient experience metrics, will become more relevant than ever before.

Positive Social Change

Past research has indicated that improved patient experiences are associated with higher levels of adherence to prevention and treatment routines, better clinical outcomes, better patient safety, and less overall care utilization (Anhang Price et al., 2014; Boulding et al., 2011). However, the relationship between patient experience measurements and readmissions among MSSP ACOs was not fully understood. My study added clarity to that relationship and highlighted the importance of improving the patient experience for the consumer and the health care industry. As health providers and administrators develop methods to improve the patient experience and satisfaction through patient-centered care, the potential exists to also improve quality. Hawthorne et al. (2014) noted that patient satisfaction includes all aspects of care quality

Conclusion

I identified the relationship between the unadjusted all condition readmission rate (per 1000) and the CAHPS patient experience domain, while adjusting for region, number of beneficiaries, and performance year among MSSP ACOs. This investigation found *ACO 3: patients' rating of doctor, ACO 4: access to specialists, ACO 6: shared*

decision making, and *ACO 7: health status/functional status* to be significantly inverse to the unadjusted all condition readmission rate (per 1000). Due to weak relationships and inconsistency among other patient experience predictors, I recommended changing the scope of the research, introducing additional covariates, and creating an adjusted outcome variable.

Overall, this study addressed an important gap in the literature, which focused on thoroughly evaluating patient experience measures and readmissions through a less explored patient-centered lens. Critics within the health care field have expressed concerns about patient feedback; particularly emphasizing its value to outcomes, potential confounding factors, and reflection of a patients a priori desires (Manary et al., 2013). However, the review of previous research allowed my study to adjust for oppositional concerns. Lastly, utilizing GST to interpret the findings allowed for a greater understanding of how all elements in health care play an important role in creating value.

References

Adams, S., Brown, J., Giordano, L. (2017). CAHPS for ACOs Breakout Session. Retrieved from http://acocahps.cms.gov/globalassets/aco---epi-2-new-site/pdfs for-aco/training/cahps_for_acos_breakout_session_final.pdf

Abrams, M., Nuzum, R., Zezza, M., Ryan, J., Kiszla, J., & Guterman, S. (2015). The Affordable Care Act's payment and delivery system reforms: a progress report at five years. *Issue Brief Commonwealth Fund, 12*, 1-16. Retrieved from https://www.commonwealthfund.org/sites/default/files/documents/___media_fil _publications_issue_brief_2015_may_1816_abrams_aca_reforms_delivery_pay ent_rb.pdf

Al-Abri, R., & Al-Balushi, A. (2014). Patient satisfaction survey as a tool towards quality improvement. *Oman Medical Journal, 29*(3), 3-7. doi:10.5001/omj.2014.02

Albright, B. B., Lewis, V. A., Ross, J. S., & Colla, C. H. (2016). Preventive care quality of Medicare Accountable Care Organizations: Associations of organizational characteristics with performance. *Medical Care*, *54*(3), 326–335. doi: 10.1097/MLR.0000000000000477

Allen, T., Mason, T., & Whittaker, W. (2014). Impacts of pay for performance on the quality of primary care. *Risk Management and Healthcare Policy, 7*, 113–120. doi:10.2147/RMHP.S46423

American Hospital Association (2010). AHA Research Synthesis Report: Accountable Care Organization. Chicago: *American Hospital Association*

Anhang Price, R., Elliott, M. N., Zaslavsky, A. M., Hays, R. D., Lehrman, W. G., Rybowski, L., Edgman-Levitan, S., & Cleary, P. D. (2014). Examining the Role of Patient Experience Surveys in Measuring Health Care Quality. *Medical Care Research and Review: MCRR, 71*(5), 522–554. doi:10.1177/1077558714541480

Arshad, A. S., Shamila, H., Jabeen, R., & Fazli, A. (2012). Measuring patient satisfaction: A cross sectional study to improve quality of care at a tertiary care hospital. East African Journal of Public Health, 9(1), 26-28. Retrieved from www.ajol.info/

Baicker, K., & Levy, H. (2013). Coordination versus Competition in Health Care Reform. *The New England Journal of Medicine, 369,* 789-791. doi:10.1056/NEJMp1306268

Barry, J.Y., McCrary, H.C., Kent, S., Saleh, A.A., Chang, E.H., & Chiu, A.G. (2016). The Triple Aim and its implications on the management of chronic rhinosinusitis. *American journal of rhinology & allergy, 30*(5), 344-350. doi: 10.2500/ajra.2016.30.4348

Beattie, M., Murphy, D. J., Atherton, I., & Lauder, W. (2015). Instruments to measure patient experience of healthcare quality in hospitals: a systematic review. *Systematic Reviews, 4*, 97. doi:10.1186/s13643-015-0089-0

Berkowitz, B. (2016). The Patient Experience and Patient Satisfaction: Measurement of a Complex Dynamic. *The Online Journal of Issues in Nursing, 21*(1). doi:10.3912/OJIN.Vol21No01Man01

Bernatz, J. T., Tueting, J. L., & Anderson, P. A. (2015). Thirty-Day Readmission Rates in Orthopedics: A Systematic Review and Meta-Analysis. *PLoS ONE, 10*(4), e0123593. doi:10.1371/journal.pone.0123593

Bertakis, K.D., & Azari, R. (2011). Patient-centered care is associated with decreased healthcare utilization. *Journal of American Family Medicine, 24* (2): 229-239. doi:10.3122/jabfm.2011.03.100170

Berwick, D. (2011). Launching affordable care organizations: The proposed rule for the Medicare shared savings program. *The New England Journal of Medicine, 364*(16), 32. Doi: 10.1056/NEJMp1103602

Berwick, D.M., Nolan, T.W., & Whittington, J. (2009). The Triple Aim: Care, Health, and Cost. *Health Affairs, 27*(3), 759-769. doi:10.1377/hlthaff.27.3.759

Burns, L. R., & Pauly, M. V. (2012). Accountable care organizations may have difficulty avoiding the failures of integrated delivery networks of the 1990s. *Health Affairs, 31*, 2407-2416. doi:10.1377/hlthaff.2011.0675

Blackstone, E. A., & Fuhr, J. P. (2016). The Economics of Medicare Accountable Care Organizations. *American Health & Drug Benefits, 9*(1), 11–19. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4822974/

CAHPS Survey for Accountable Care Organizations Participating in Medicare Initiatives. (2017). Retrieved from http://acocahps.cms.gov/globalassets/aco---epi 2-new site/pdfs-for-aco/quality-assurance guidelines/2017_aco_qag_version_5_chapters_final_072817rand_8-29 17_revised-final.pdf

Boulding, W., Glickman, S.W., Manary, M.P., Schulman, K.A., & Staelin, R. (2011). Relationship between patient satisfaction with inpatient care and hospital readmission within 30 days. *The American Journal of Managed Care*, *17*(1), 41 48. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/21348567

Centers for Medicare & Medicaid Services. (2013a). Medicare program; hospitals inpatient prospective payment systems for acute care hospitals and the long-term care hospital prospective payment system and Fiscal Year 2014 rates; quality reporting requirements for specific providers; hospitals conditions of participation; payment policies related to patient status. Final rules. Federal Registry, 78(160), 50495-1040.

Centers for Medicare & Medicaid Services. (2014b). Accountable Care Organizations (ACOs): General Information. Retrieved October 15, 2017 from https://innovation.cms.gov/initiatives/aco/

CG CAHPS for ACOs (2012). Field Test Survey Content by Survey Domain Overview Retrieved May 26, 2018 from http://www.cms.gov/SharedSavingsProgram/30_Statues_Regulations_Guidance.sp

Chang, J.T., Hays, R.D., Shekeele, P.G., MacLean, C.H., Solomon, D.H., Reuben, D.B., Roth, C.P., Kamberg, C.J., Adams, J., Young, R.T., & Wenger, N.S. (2006). Patients' global ratings of their health care are not associated with the technical quality of their care. *Amn Internal Medicine, 144*(9), 665-672. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/16670136

Chiang, H. (2012). *Variables associated with happiness and quality of life for the terminally ill* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3523317)

Cipriano, P. (2012). The imperative for patient, family, and population centered Inter professional approaches to care coordination and transitional care: A policy brief by the American Academy of Nursing's Care Coordination Task Force. *American Academy of Nursing on Policy*, 330-333. doi: 10.1016/j.outlook.2012.06.021

Christensen, C., Flier, J., & Vijayaraghan, V. (2013). Christensen, Flier and Vijayaraghavan: The coming failure of 'accountable care'. *The Wall Street Journal*. Retrieved from www.himss.org

Clarke, J. L., Bourn, S., Skoufalos, A., Beck, E. H., & Castillo, D. J. (2017). An Innovative Approach to Health Care Delivery for Patients with Chronic Conditions. *Population Health Management*, *20*(1), 23–30. doi:10.1089/pop.2016.0076

Code of Federal Regulations (2012). Definition of health care provider. Retrieved from https://www.gpo.gov/fdsys/search/pagedetails.action?collectionCode=CFR&browsePath=Title+29%2FSubtitle+B%2FChapter+V%2FSubchapter+C%2FPart+82%2FSubpart+A%2FSection+825.125&granuleId=CFR-2012-title29-vol3-sec825125&packageId=CFR-2012-title29-vol3&collapse=true&fromBrowse=true

Cohen, J., West, S.G., Aiken, L.S. (2013). *Applied Multiple Regression/Correlation Analysis for Behavioral Sciences* (3rd.). Mahwah, NJ: Lawrence Erlbaum Associations Inc.

Colla, C. H., Lewis, V. A., Gottlieb, D. J., Fisher, E. S. (2013). Cancer spending and accountable care organizations: Evidence from the Physician Group Practice Demonstration. Healthcare (Amsterdam), 1, 100-107. doi: 10.1016/j.hjdsi.2013.05.005

Colla, C. H., Lewis, V. A., Kao, L. S., O'Malley, A. J., Chang, C. H., Fisher, E. S. (2016). Association between Medicare accountable care organization implementation and spending among clinically vulnerable beneficiaries. *JAMA Internal Medicine, 176,* 1167-1175. doi:10.1001/jamainternmed.2016.2827

Consumer Assessment of Healthcare Providers & Systems (CAHPS) (2017). CAHPS for ACOs. Retrieved from https://www.cms.gov/Research-Statistics-Data-and Systems/Research/CAHPS/aco.html

Cordon, C.P. (2013). System Theories: An Overview of Various System Theories and Its Application in Healthcare. *American Journal of Systems Science, 2* (1), 13-22. doi:10.5923/j.ajss.20130201.03.

Cropley, S. (2012). The relationship-based care model: Evaluation of the impact on patient satisfaction, length of stay, and readmission rates. *Journal of Nursing Administration, 42,* 333-339. doi:10.1097/NNA.0b013e31825738ed

Davies, E., Shaller, D., Edgeman-Levitan, P.A., Safran, D.G., Oftedahl, G., Sakowski, J., & Clearly, P.D. (2008). Evaluating the use of a modified CAHPS survey to support improvements in patient-centered care: lessons from a quality improvement collaborative. *Health Expectation, 11*(2), 160-176. doi: 10.1111/j.13697625.2007.00483.x

Davis, P.A., Hahn, J., Morgan, P.C., Stone, J., & Tilson, S. (2010). Medicare Provisions in the Patient Protection and Affordable Care Act (PPACA). Retrieved from http://www.ncsl.org/documents/health/mcprov.pdf

Devers, K., & Berenson, R. (2009). Can Accountable Care Organizations Improve the Value of Health Care by Solving the Cost and Quality Quandaries? *Robert Wood Johnson Foundation*. Retrieved from https://www.urban.org/sites/default/files/publication/30721/411975-Can Accountable Care-Organizations-Improve-the-Value-of-Health-Care-by-Solving the-Cost-and Quality-Quandaries-.PDF

Dadosky, A., Overbeck, H., Egnaczyk, G., Menon, S., Obrien, T., & Chung, E. (2016). The Effect of Enhanced Patient Education on 30-day Heart Failure Readmission Rates. *The Journal of Acute and Critical Care, 45*(4), 372. doi:10.1016/j.hrting.2016.05.002

Dupree, J.M., Patel, K., Singer, S.J., West, M., Wang, R., Zinner, M.J., & Weissman, J.S. (2014). Attention to surgeons and surgical care is largely missing from early Medicare accountable care organizations. *Health Affairs, 33(*6), 972-979. doi:10.1377/hithaff.2013.1300

Elliot, M.N., Haviland, A.M., Cleary, P.D., Zaslavsky, A.M., Farley, D.O., Klein, D.J., Edwards, C.A., Becket, M.K., Orr, N., & Saliba, D. (2013). Care Experiences of Managed Care Medicare Enrollees Near the End of Life. *Journal of American Geriatric Society, 61,* 407-412. doi:10.1111/jgs.12121

Elliot, M. N., Lehrman, W.G., Goldstein, E.H., Giordano, L.A., Beckett, M. K., Cohen, C. W., & Cleary, P. D. (2010). Hospital survey shows improvements in patient experience. *Health Affairs, 29*, 2061–2067. doi:10.1377/hlthaff.2009.0876

Ellis-Jacobs, K. (2011). A quantitative correlational study on the impact of patient satisfaction on a rural hospital. *The Internet Journal of Allied Health Sciences and Practice*, *9*(4), 1–6.

Elman, S., & Zaiken, K. (2016). Improving performance of an accountable care organization on a quality measure assessing β-blocker use in systolic heart failure. *American Journal of Health-System Pharmacy*, *73*, S121-S125. doi:10.2146/ajhp150710

Epstein, N. E. (2014). Multidisciplinary in-hospital teams improve patient outcomes: A review. *Surgical Neurology International*, *5*(7), S295–S303. doi:10.4103/2152-7806.139612

Epstein, A.M., Jha, A.K., Orav, E.J., Liebman, D.L., Audet, A., Zezza, M.A., & Guterman, S. (2014). Analysis of early accountable care organizations defines patient, structural, cost, and quality-of-care characteristics. *Health Aff (Millwood), 33(*1), 95–102. doi:10.1377/hlthaff.2013.1063.

Faber, M. J., Grande, S., Wollersheim, H., Hermens, R., & Elwyn, G. (2014). Narrowing the gap between organizational demands and the quest for patient involvement: The case for coordinated care pathways. *International Journal of Care Coordination*, *17*, 72-78: doi: 10.1177/2053435414540616

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.

Fellows, J. (2013). New approaches to patient experience. Health Leaders Media, July/August, 10-24. Retrieved from https://www.healthleadersmedia.com/clinical care/patient-experience-old-school-approach-may-be-best

Fenton, J. J., Jerant, A. F., Bertakis, K. D., & Franks, P. (2012). The cost of satisfaction: A national study of patient satisfaction, health care utilization, expenditures, and mortality. Archives of Internal Medicine, 172, 405–411. doi:10.1001/archinternmed.2011.1662

Ferlie, E.B., & Shortell, S.M. (2001). Improving the quality of health care in the United Kingdom and the United States: a framework for change. *Milbank Quarterly, 7*9(2):281-315. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/11439467

Ferond, C. (2006). The reciprocal partnership between research and practice across borders. *Performance Improvement, 45*: 6–7. doi:10.1002/pfi.2006.4930450603

Fisher, E. S., McClellan, M. B., Bertko, J., Lieberman, S. M., Lee, J. J., Lewis, J. L., & Skinner, J. S. (2009). Fostering Accountable Health Care: Moving Forward In Medicare: Real savings to the Medicare program could occur within five years with only modest changes in providers' spending behavior. *Health Affairs (Project Hope), 28*(2), 219–231. doi:10.1377/hlthaff.28.2. w219

Fisher, E. S., Staiger, D. O., Bynum, J. P. W., & Gottlieb, D. J. (2007). Creating Accountable Care Organizations: The Extended Hospital Medical Staff: A new approach to organizing care and ensuring accountability. *Health Affairs (Project Hope), 26*(1), 44–57. doi:10.1377/hlthaff.26.1.w44

Frandsen, B.R., Joynt, K.E., Rebitzer, J.B., & Jha, A.K. (2015). Care fragmentation, quality, and costs among chronically ill patients. *Am J Manag Care, 21*(5), 355 362. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/26167702

Gebhardt, S., Wolak, A.M., Huber, T.M. (2012). Patient satisfaction and clinical parameters in psychiatric inpatients: the prevailing role of symptom severity and pharmacologic disturbances. *Comprehensive Psychiatry, 54* (1): 53-60. doi: 10.1016/j.comppsych.2012.03.016

Glover, M., Khalilzadeh, O., Choy, G., Prabhakar, A.M., Pandharipande, P.V., Gazelle, G.S. (2015). Hospital evaluations by social media: A comparative analysis of facebook ratings among performance outliers. Journal of General Internal Medicine, 30(10): 1440-1446. doi:10.1007/s11606-015-3236-3

Green, S. B., & Salkind, N. J. (2014). *Using SPSS for Windows and Macintosh: Analyzing and understanding data.* Upper Saddle River, N.J: Prentice Hall.

Greene, S.M., Tuzzio, L., & Cherkin, D. (2012). A Framework for making Patient Centered Care Front and Center. *The Permanente Journal, 16*(3), 49-53. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3442762/

Grégoire, G. (2014). Multiple linear regression. EAS Publications Series, 6645 72. doi:10.1051/eas/1466005

Hardcastle, L. E., Record, K. L., Jacobson, P. D., & Gostin, L. O. (2011). Improving the population's health: The Affordable Care Act and the importance of integration. *The Journal of Law, Medicine & Ethics: A Journal of the American Society of Law, Medicine & Ethics*, *39*(3), 317-327. doi:10.1111/j.1748 720X.2011.00602.x

Hawthorne, G., Sansoni, J., Hayes, L., Marosszeky, N., & Sansoni, E. (2014). Measuring patient satisfaction with health care treatment using the short assessment of patient satisfaction measure delivered superior and robust satisfaction estimates. *Journal of Clinical Epidemiology*, *67*(5), 527 537. doi:10.1016/j.jclinepi.2013.12.010

Haynes, R.B., McDonald, H.P., & Garg, A.X. (2002). Helping patients follow prescribed treatment. *Journal of the American Medical Informatics Association, 288* (22), 2880-2883. doi:10.1001/jama.288.22.2880.

Heidenreich, P. A. (2013). Time for a thorough evaluation of patient-centered care. Circulation: Cardiovascular Quality and Outcomes, 6, 2-4. doi:0.1161/CIRCOUTCOMES.112.970194

Herrin, J., St Andre, J., Kenward, K., Joshi, M. S., Audet, A.-M. J., & Hines, S. C. (2015). Community Factors and Hospital Readmission Rates. *Health Services\ Research*, *50*(1), 20–39. doi:10.1111/1475-6773.12177

Horwitz, L., Partovian, C., Lin, Z., Herrin, J., Grady, J., Conover, M., Montague, J., Dillaway, C., Bartczak, K., Ross, J., Bernheim, S., Drye, E., & Krumholz, H. (2011). *Hospital-Wide All-Cause Risk-Standardized Readmission Measure: Measure Methodology Report.* Prepare for the U.S. Centers for Medicare and Medicaid Services. New Haven, Connecticut: Yale New Haven Health Services Corporation/Center for Outcomes Research & Evaluation

Hostetter, M., & Klein, S. (2011). Using patient-reported outcomes to improve healthcare quality. *Quality Matters, 1*(5). Retrieved from https://www.commonwealthfund.org/publications/newsletter/using-patient reported-outcomes-improve-health-care-quality

Huppertz, J., & Carlson, J. (2010). Consumers' use of HCAHPS ratings and word-of mouth in hospital choice. Health Services Research, 45, 1602–1613. doi:10.1111/j.14756773.2010.01153

IHI Home Page. (2014). http://www.ihi.org.

Institute of Medicine of the National Academies. (2009). *The future of nursing: Leading change, advancing health.* Washington, DC: National Academies Press. Retrieved from https://www.nap.edu/read/12956/chapter/1

Jencks, S.F., Williams, M.V., & Coleman, E.A. (2009). Re- hospitalizations among patients in the Medicare fee-for-service program. *New England Journal of Medicine, 360*(14), 1418-1428. doi:10.1056/NEJMsa0803563

Jha, A.K., Joynt, K.E., Orav, J.E., & Epstein, M.D. (2012). The Long-Term Effect of Premier Pay for Performance on Patient Outcomes. *New England Journal of Medicine, 366,*1606-1616. doi:10.1056/NEJMsa1112351

Jennen, J. J. (2014). The triple aim: Health care and delivery reform. *ProQuest LLC.* http://www.ihi.org/engage/initiatives/TripleAim/Documents/BeasleyTripleAim_CHEJan09.pdf

Joynt, K.E. & Jha, A.K. (2011). Who has higher readmission rates for heart failure, and why? Implications for efforts to improve care using financial incentives. *Circulation. Cardiovascular Quality Outcomes, 4*(1), 53-59. doi:110.950964

Kaufman, B.G., Spivack, B.S., Stearns, S.C., Song, P.H., & O'Brien, E.C. (2017). Impact of Accountable Care Organizations on Utilization, Care, and Outcomes: A Systematic Review. Medical Care Research and Review, doi: 10.1177/1077558717745916. Retrieved from https://www-ncbi-nlm-nih gov.ezp.waldenulibrary.org/pubmed/29231131

Kautter, J., Pope, G.C., Leung, M., Trisolini, M., Adamache, W., Smith, K., Trebino, D., Kaganova, J., Patterson, L., Berzin, O., & Schwartz, M. (2012). Evaluation of the Medicare Physician Group Practice Demonstration: Final Report. Research Triangle Park, NC: RTI International.

Kennedy, B., Craig, J. B., Wetsel, M., Reimels, E., & Wright, J. (2013). Three nursing interventions' impact on HCAPHS scores. *Journal of Nursing Care Quality, 28,* 327-324. doi: 10.1097/NCQ.0b013e1828b494c

Kennedy, D.M., Didehban, R., & Fasolino, J.P. (2014). Creating and sustaining a culture of accountability for patient experience. *Patient Experience Journal,* 1(2), 46-52. Retrieved from http://pxjournal.org/journal/vol1/iss2/9

Kern, L. N., Dhopeshwarkar, R. V., Edwards, A., & Kaushal, R. (2013). Patient experience over time in Patient-Centered Medical Homes. *American Journal of Managed Care, 19*(5), 403-410. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/23781893

Kessell, E., Pegany, V., Keolanui, B., Fulton, B. D., Scheffler, R. M., & Shortell, S. M. (2015). Review of Medicare, Medicaid, and Commercial Quality of Care Measures: Considerations for Assessing Accountable Care Organizations. *Journal of Health Politics, Policy And Law*, 40(4), 761-796. doi:10.1215/03616878-3150050

Kirby, S.E., Dennis, S.M., Jayasinghe, U.W. & Harris, M.F. (2010). Patient related factors in frequent readmissions: the influence of condition, access to services and patient choice. *BMC Health Services Research*, 10(216). doi: 10.1186/1472-6963 10-216

Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling. Third Edition.* New York: Guilford Press.

Kodner, D., & Spreeuwenberg, C. (2002). Integrated care: meaning, logic, applications, and implications – a discussion paper. *International Journal of Integrated Care, 2*, e12.

Kolbasovsky, A., Zeitlin, J., Gillespie, W. (2012). Impact of point of care case management on readmissions and costs. *American Journal of Managed Care, 18*(8), 300-306. Retrieved from https://www.ajmc.com/journals/issue/2012/2012 8-vol18-n8/impact-of-point-of-care-case-management-on-readmissions-and-costs

Kothari, A. N., Loy, V. M., Brownlee, S. A., Ezure, Y., Schaidle-Blackburn, C., Cotler, S. J., &Lu, A. D. (2017). Adverse Effect of Post-Discharge Care Fragmentation on Outcomes after Readmissions after Liver Transplantation. *Journal Of The American College Of Surgeons, 225*(1), 62-67. doi:10.1016/j.jamcollsurg.2017.03.017

Kripalani, S., Theobald, C. N., Anctil, B., & Vasilevskis, E. E. (2014). Reducing Hospital Readmission: Current Strategies and Future Directions. *Annual Review of Medicine, 65*, 471–485. doi: 10.1146/annurev-med-022613-090415

Lagasse, J. (2017). Why healthcare needs to become even more consumer-focused. Retrieved from http://www.healthcarefinancenews.com/news/why-healthcare needs-become-even-more-consumer-focused

Lagoe, R.J., Nanno, D.S., & Luziani, M.E. (2012). Quantitative tools for addressing hospital readmissions. *BMC Research Notes 5(*620). doi: 10.1186/17560500-5 620

La Vela, S.L. & Gallan, A.S. (2014). Evaluation and measurement of patient experience. Patient Experience Journal, 1(1), 28-36. Retrieved from http://pxjournal.org/cgi/viewcontent.cgi?article=1003&context=journal

Lee, E.O., & Emanuel, E.J. (2013). Shared Decision Making to Improve Care and Reduce Costs. *The New England Journal of Medicine, 368*: 6-8. doi: 10.1056/NEJMp12-9500

Lindsey, G. (2014). Are ACOs on Uncertain Ethical Ground and a Threat to the Autonomy of Patients and Physicians? *Journal of General Internal Medicine*, *29*(10), 1319–1321. doi:10.1007/s11606-014-2915-9

Locock, L., Robert, G., Boaz, A., Vougioukalou, S., Shuldham, C., Fielden, J., & Pearcey, J. (2014). Testing accelerated experience-based co-design: a qualitative study of using a national archive of patient experience narrative interviews to promote rapid patient-centered service improvement. *Health Services and Delivery Research, 2 (*4). doi: 10.3310/hsdr02040

Maeng, D. D., Davis, D. E., Tomcavage, J., Graf, T. R., & Procopio, K. M. (2013). Improving patient experience by transforming primary care: Evidence from Geisinger's patient-centered medical home. *Population Health Management, 16*(3), 157–163. Doi: 10.1089/pop.2012.0048

Manary, M. P., Boulding, W., Staelin, R., & Glickman, S. W. (2013). The patient experience and health outcomes. *New England Journal of Medicine, 368*, 201-203. doi:10.1056/NEJMp1211775

Manchikanti, L., Caraway, D., Parr A., Fellows, B., & Hirsch, J. (2011). Patient protection and affordable care act of 2010: Reforming the health care reform for the new decade. *Pain Physician Journal, 14*(2), 35-67.

Mann, R.K., Siddiqui, Z., Kurbanova, N., & Qayyum, R. (2016). Effect of HCAHPS reporting on patient satisfaction with physician communication. *Journal of Hospital Medicine, 11(*2), 105-110. doi:10.1002/jhm.2490

Mansukhani, R. P., Bridgeman, M. B., Candelario, D., & Eckert, L. J. (2015). Exploring Transitional Care: Evidence-Based Strategies for Improving Provider Communication and Reducing Readmissions. *Pharmacy and Therapeutics*, *40*(10), 690–694.

McCarthy, M. (2015). ACA and the Triple Aim: Musings of a Health Care Actuary. *Benefits Quarterly*, *31*(1), 39-42.

McDaniel, R. R., Lanham, H. J., & Anderson, R. A. (2009). Implications of complex adaptive systems theory for the design of research on health care organizations. *Health Care Management Review, 34*(2), 191–199. doi:10.1097/HMR.0b013e31819c8b38

McCovery, J., & Matusitz, J. (2014). Assessment of collaboration in U.S. health care delivery: a perspective from systems theory. Social work in public health, 29(5), 451-461. doi:10.1080/19371918.2013.865109.

McIIvennan, C. K., Eapen, Z. J., & Allen, L. A. (2015). Hospital Readmissions Reduction Program. *Circulation, 131*(20), 1796–1803. doi: 10.1161/CIRCULATIONAHA.114.010270

McWilliams, J. M., Hatfield, L. A., Chernew, M. E., Landon, B. E., & Schwartz, A. L. (2016). Early Performance of Accountable Care Organizations in Medicare. *The New England Journal of Medicine, 374*(24), 2357–2366. doi:10.1056/NEJMsa1600142

Miller, H. (2009). Transitioning to Accountable Care. *Centers for Healthcare Quality & Payment Reform.* Retrieved from http://www.chqpr.org/downloads/TransitioningtoAccountableCare.pdf

Montero, A. J., Stevenson, J., Guthrie, A. E., Best, C., Goodman, L. M., Shrotriya, S., & . Khorana, A. A. (2016). Reducing Unplanned Medical Oncology Readmissions by Improving Outpatient Care Transitions: A Process Improvement Project at the Cleveland Clinic. *Journal of Oncology Practice, 12*(5), 478-e602. doi:10.1200/JOP.2015.007880

Moseley, A., Accavitti, M.J., Bhakta, A., Colbert, M., Hinch, B., & Mohamedali B. (2017). Reducing Heart Failure Readmissions Using Multidisciplinary Approach. *Circulation, 136* (1). Retrieved from http://circ.ahajournals.org/content/136/Suppl_1/A14733.short

National Committee for Quality Assurance (2012). Reducing readmissions:measuring health plan performance. 2012 Insights for Improvement. Retrieved from http://www.ncqa.org/portals/0/Publications/2012%20BI_NCQA%20ReAdMi%20updf

Nahon-Serfaty, I. (2012). The Disruptive Consequences of Discourse Fragmentation in the Organization and Delivery of Health Care: A Look into Diabetes. *Health Communication, 27* (5), 506-516. doi:10.1080/1040236.2011.618426

Nester, J. (2016). The Importance of Interprofessional Practice and Education in the Era of Accountable Care. *North Carolina Medical Journal, 77*(2), 128-132. Retrieved from http://www.ncmedicaljournal.com/content/77/2/128.full

Noon, C.E., Hankins, T., & Cote, M.J. (2003). Understanding the impact of variation in the delivery of healthcare services. *J Healthcare Management, 48*(2), 82-98

Nyweide DJ, Lee W, Cuerdon TT, Pham HH, Cox M, Rajkumar R, Conway PH. (2015). Association of Pioneer Accountable Care Organizations vs Traditional Medicare Fee for Service with Spending, Utilization, and Patient Experience. *JAMA, 313(*21), 2152-2161. doi:10.1001/jama.2015.4930

O'Halloran, K., Depalma, A., Joseph, V., Cobelli, N., & Sharan, A. (2012). The role of accountable care organizations in delivering value. *Current Reviews in Musculoskeletal Medicine, 5*(4), 283–289. doi:10.1007/s12178-012-9138-7

O'Malley, J. A., Zaslavsky, A. M., Elliott, M. N., & Clearly, P. D. (2005). Case mix adjustment of CAHPS Hospital Survey. *Health Services Research, 40*(6), 2162 2181.

Peikes, D., Chen, A., Schore, J., & Brown, R. (2009). Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries. *Journal of the American Medical Association, 301,* 603-618. Retrieved from http://jama.jamanetwork.com

Phillips, C. O., Wright, S. M., Kern, D. E., Singa, R. M., Shepperd, S., & Rubin, H. R. (2004). Comprehensive discharge planning with post discharge support for older patients with congestive heart failure: A meta-analysis. *Journal of the American Medical Association, 291,* 1358-1367. doi:10.1001/jama.291.11.1358

Pope, G., Kautter, J., Leung, M., Trisolini, M., Adamache, W., Smith, K. (2014). Financial and quality impacts of the Medicare physician group practice demonstration. *Medicare & Medicaid Research Review, 4*(3). doi:10.5600/mmrr.004.03.a01

Ratanawongsa, N., Karter, A.J., Parker, M.M., Lyles, C.R. Heisler, M., Moffet, H.F., Adler, N., Warton, E.M., & Schillinger, D. (2013). Communication and medication refill adherence: the Diabetes Study of Northern California. *JAMA, 173*(3): 210-218. doi:10.1001/jamainternmed.2013.1216

Reeves, R., West, E., & Barron, D. (2013). Facilitated patient experience feedback can improve nursing care: A pilot study for a phase III cluster randomized controlled trial. *BioMed Central Health Services Research, 13*(259), 1-9. doi:10.1186/1472 6963-13259.

Reiss-Brennan, B., Brunisholz, K.D., Dredge, C., Briot, P., Grazier, K., Wilcox, A., Savitz, L., & James, B. (2016). Association of Integrated Team-Based Care With Health Care Quality, Utilization, and Cost. *JAMA. 316*(8):826–834. doi:10.1001/jama.2016.11232

Rosen, O.Z., Fridman, R., Rosen, B.T., Shane, R., & Pevnick, J.M. (2017). Medication adherence as a predictor of 30-day hospital readmissions. Patient Preference Adherence, 11, 801-810. doi:102147/PPA.S125672.eCollection2017

Rosenbaum, S. (2011). The Patient Protection and Affordable Care Act: Implications for Public Health Policy and Practice. *Public Health Reports, 126*(1), 130–135.

Roseman, D., Osborne-Stafsnes, J., Amy, C.H., Boslaugh, S., & Slate-Miller, K. (2013). Early lessons from four "aligning forces for quality" communities bolster the case for patient-centered care. *Health affiliation, 32*(2), 232-241. doi: 10.1377/hlthaff.2012.1085

Rothenfluh, F., & Schulz, P. J. (2017). Physician Rating Websites: What Aspects Are Important to Identify a Good Doctor, and Are Patients Capable of Assessing Them? A Mixed-Methods Approach Including Physicians' and Health Care Consumers' Perspectives. *Journal of Medical Internet Research, 19*(5), e127. doi:10.2196/jmir.6875

Rudnicki, M., Armstrong, J. H., Clark, C., Marcus, S. G., Sacks, L., Moser, A. J., & Reid Lombardo, K. M. (2016). Expected and Unexpected Consequences of the Affordable Care Act: The Impact on Patients and Surgeons-Pro and Con Arguments. *Journal of Gastrointestinal Surgery: Official Journal of The Society For Surgery Of The Alimentary Tract*, *20*(2), 351-360. doi:10.1007/s11605-015 3032-8

Ryan, A.M., R., Krisnky, S.., Adler-Milstein, J., Damber, C.L., Maurer, K.A., & Hollingsworth, J.M. (2017). Association Between Hospitals' Engagement in Value-Based Reforms and Readmission Reduction in the Hospital Readmission Reduction Program. *JAMA Intern Med*, 177(6), 862–868. doi:10.1001/jamainternmed.2017.0518

Safran, D.G., Wilson, I.B., Williams, R.H., Montgomery, J.E., & Hong, C. (2002). Comparing the Performance of Medicare Health Maintenance Organizations and Traditional Fee-for-Service Medicare. *Archinte Intern Medicine*, 162(7): 757-765. doi:10.1001/archinte.162.7.757

Schaffer, J.T., Hess, E.P., Hollander, J.E., Kline, J.A., Torres, C.A., Diercks, D.B., Russell Jones, M.D., Owen, K.P., Meisel, Z.F., Demers, M., Leblanc, A., Inselman, J., Herrin, J., Montori., V.M., & Shah., N.D. (2017). Impact of Shared Decisions Making Intervention on Health Care Utilization: A Secondary Analysis of the Chest Pain Choice Multicenter Randomized Trial. *Academic Emergency Medicine*, 1553-2712. doi:10.111/acem.13355

Scott, L. (2010). It's all about the outcomes. *Hospitals & Health Networks.* 84 (12): 22 26. Retrieved from https://search-proquest com.ezp.waldenulibrary.org/central/docview/822912634/fulltext/FEB14B946C 44F2PQ/8?accountid=14872

Siddiqui, M., & Berkowitz, S. A. (2014). Shared savings models for ACOs-incentivizing primary care physicians. *Journal of General Internal Medicine, 29*(6), 832-834. doi:10.1007/s11606-013-2733-5

Silow-Carroll, S., Edwards, J.N., & Lashbrook, A. (2011). Reducing Hospital Readmissions: Lessons from Top-Performing Hospitals. The Commonwealth Fund: *Synthesis Report.* Retrieved from http://www.commonwealthfund.org/~/media/Files/Publications/Case%20Study/ 011/p /1473_SilowCarroll_readmissions_synthesis_web_version.pdf

Shaw, S., & Rosen R. (2013). Fragmentation: a wicked problem with an integrated solution? *Journal of health services research & policy; 18*(1), 61-64. doi: 10.1258/jhsrp.2012.012002

Shi, L. (2012). The Impact of Primary Care: A Focused Review. *Scientifica,* 432892(22). doi:10.6064/2012/432892

Shortell, S.M., Bing, Y.P., Ramsay, P.P., Rodriguez, H.P., Ivey, S.L., Huber, T., Rich, J., & Summerfelt, T. (2017). A Multilevel Analysis of Patient Engagement and Patient-Reported Outcomes in Primary Care Practices of Accountable Care Organizations. *Journal of Internal Medicine, 32* (6), 640-647. doi: 10.1007/s11606-016-3980z

Shortell, S.M., & McCurdy, R.K. (2010). Integrated health systems. *Study Health Technology Information; 153*: 369-382. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/20543254

Shortell, S.M., & Casalino, L.P. (2008). Health Care Reform Requires Accountable Care Systems. JAMA; 300(1): 95-97. doi:10.1001/jama.300.1.95

Smith, S.A. (2014) Magnet Hospitals: Higher Rates of Patient Satisfaction. *Policy, Politics, & Nursing Practice, 15*(1), 30-41, doi: 10.1177/1527154414538102

Solimeo, S.L., Steward, G.L., & Rosenthal, G.E. (2016). The Critical Role of Clerks in the Patient-Centered Medical Home. *Annals of Family Medicine, 14*(4), 377-379. doi:10.1370/afm.1934

Song, Z. (2014). Accountable Care Organizations in the U.S. Health Care System. *Journal of Clinical Outcomes Management: JCOM, 21*(8), 364–371.

Steventon, A. & Krumholz, H. (2014). Does US health reform reduce hospital readmission rates? *BMJ; 348*. doi:10.1136/bmj.g2641

Strange, K.C. (2009). The Problem of Fragmentation and the Need for Integrative Solutions. *Annals of Family Medicine, 7*(2), 100-103. doi:10.1370/afm.971

Sultz, H.A., & Young, K.M. (2011). *Health Care, USA: understanding its organization and delivery.* Sudbury, MASS: Jones and Bartlett

Swanson, R.A. & Holton, E.F. (2005). *Research in organizations: Foundations and methods of inquiry.* Berrett-Koehler Publishers. Retrieved from http://kharazmi statistics.ir/Uploads/Public/book/research%20in%20organization.pdf

Tompkins, C.P., Higgins, A.R., & Ritter, G.A. (2009). Measuring Outcomes and Efficiency in Medicare Value-Based Purchasing. *Health Affairs*, *28*(2), 251-261. doi:10.1377/hlthaff.28.2.w251

Toussaint J, Milstein A, Shortell S. (2013). How the pioneer ACO model needs to change: lessons from its best-performing ACO. *JAMA*, *310(*13), 1341–2. doi: 10.1001/jama.2013.279149.

Trivisonno, J. (2014). Improving HCAHPS, patient mortality and readmission: Maximizing reimbursements in the age of health care reform, 1-9.

Trzeciak, S., Gaughan, J. P., Bosire, J., & Mazzarelli, A. J. (2016). Association Between Medicare Summary Star Ratings for Patient Experience and Clinical Outcomes in US Hospitals. *Journal of Patient Experience*, *3*(1), 6–9. doi: 10.1177/2374373516636681

Tu, T., Muhlestein, D., Kocot, S.L., & White, R. (2015). The Impact of Care: Origins and Future of Accountable Care Organizations. Leavitt Partners. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/06/Impact-of-Accountable CareOrigins-052015.pdf

U.S. Department of Health and Human Services. (2011). *Administration implements new health reform provision to improve care quality, lower costs: Included in Affordable Care Act, value-based purchasing will reward 3.500 hospitals based o*n quality of care for patients. Retrieved from http://www.healthcare.gov/news/factsheets/2011/04/valuebasedpurchasing042920 11a.html

Vest, J.R., Gamm, L.D., Oxford, B.A., Gonzalez, M.I., & Slawson, K.M. (2010). Determinants of preventable readmissions in the United States. a systematic review.*Implementation Science, 5(*88). doi:10.1186/1748-5908-5-88

Vogus, T.J., & McClelland, L.E. (2016). When the customer is the patient: Lessons from healthcare research on patient satisfaction and service quality ratings. *Human Resource Management Review*, *26*(1), 37 49. doi:0.1016/j.hrmr.2015.09.005

Von Bertalannffy, L. (1968). The history and status of general systems theory. *Academy of Management Journal, 15*, 407-426. doi:10.2307/255139

Walker, D., & Mora, A.M. (2016). Quality Improvement Strategies in Accountable Care Organization Hospitals. *Quality Management in Health Care*, *25*(1), 8-12. doi:10.1097/QMH.0000000000000081

Wang DE, Tsugawa Y, Figueroa JF, Jha AK. Association Between the Centers for Medicare and Medicaid Services Hospital Star Rating and Patient Outcomes. *JAMA Intern Med.* 2016; 176(6):848–850. doi:10.1001/jamainternmed.2016.0784

Wen, J., & Schulman, K. A. (2014). Can team based care improve patient satisfaction? A systemic review of randomized controlled trials. *PLos ONE, 9*(7). doi:10.1371/journal.pone.0100603:e100603

Willis, K. A. (2016). Challenges and Pitfalls of Operating a Rural Accountable Care Organization. *North Carolina Medical Journal*, *77*(4), 271. doi: 10.18043/ncm.77.4.271

Winblad, U., Mor, V., McHugh, J. P., & Rahman, M. (2017). ACO-Affiliated Hospitals Reduced Rehospitalizations From Skilled Nursing Facilities Faster Than Other Hospitals. *Health Affairs (Project Hope)*, 36(1), 67–73. doi:10.1377/hlthaff.2016.0759

Whittaker, W., Anselmi, L., Kristensen, S.R., Lau, Y., Bailey, S., Bower, P., Checkland, K., Elvey, R., Rothwell., K., Stokes, J., & Hodgson, D. (2016) Associations between Extending Access to Primary Care and Emergency Department Visits: A Difference-In-Differences Analysis. *PLOS, 13*(9) doi:10.1371/journal.pmed.1002113

Wolf, J.A., Neiderhauser, V., Marshburn, D., & LaVela, S. (2014). Defining Patient Experience. Patient Experience Journal, 1(1). Retrieved from http://pxjournal.org/journal/vol1/iss1/3