3-2019

THE IMPACT OF MARYLAND'S GLOBAL REIMBURSEMENT SYSTEM ON PATIENT SATISFACTION: A ONE-WAY ANALYSIS OF VARIANCE

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A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Capella University

March 2019

Abstract

The quality and cost of health care services have been of significant concern for many years for policymakers and healthcare leaders. New payment models such as the global payment model and the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey instrument were introduced to assess and improve the national healthcare system. However, the impact of the global payment model on patient satisfaction of care remains limited. The purpose of this study was to investigate if Maryland Global Payment Model impacts patient ratings of hospital care during and after the implementation of the model. The primary research question used for this study was how does patient satisfaction change after the implementation of Maryland's global payment model? The research methodology used for this study was quantitative with a one-way ANOVA design. Secondary data from 42 hospitals were used to investigate the impact of Maryland Global Payment Model on patient satisfaction of care. Data were downloaded from the Centers for Medicare and Medicaid Services (CMS) website and include the patient's average satisfaction scores of their perception about hospital services. A one-way analysis of variance (ANOVA) was used to test patient satisfaction of *communication with nurses, communication with doctors, the responsiveness of hospital staff, pain management, communication about medicines, care transition, discharge information, overall hospital rating,* and *willingness to recommend the hospital*. Although patient satisfaction scores of communication with nurses, communication with doctors, the responsiveness of hospital staff, pain management, communication about medicines, discharge information, and overall hospital rating trended positively during and post implementation of Maryland global payment mode, the only statistically significant difference was communication about medicines. The findings of this study can encourage healthcare professionals and policymakers to place a high value on the

performance of health care providers and the development of new payment models that can positively impact patient satisfaction of care. Further research could expand the study to incorporate inpatient services provided at other states to reveal how a global payment model impacts patient satisfaction under a larger scale.

Dedication

To God be the glory, great things he hath done. I dedicate this dissertation to my wife, Tricia Penniecook, and sons Tyrell, Anthony, and Jonathan Blanco-Penniecook, you are a blessing to me. To my mother, Joyce Topping, in memoriam and my father, Marcelo Blanco, you gave me the keys to open the door of knowledge. Also, I am so grateful to my brothers and sisters (Roberto, Enrique, Katia, Yesenia, Yorlanda, and Eillin Blanco-Topping), for their support during this process and throughout my life. Finally, I want to thank my friends and colleagues for the words of encouragement received during the time of this dissertation.

Acknowledgment

I want to thank my advisor, Dr. Paige Krabill, for investing quality time with me on getting my dissertation to approve. Also, I want to express my gratitude to Dr. Andrea Daines, who has been actively guiding and inspiring me through my dissertation. Dr. Daines, I have learned so much from you, your dedication and patience inspire me to help others. To my committee members, Dr. Janet Balke and Dr. Lynn Jones, thank you for your guidance and feedback. I would not be able to do this without your participation.

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CHAPTER 1. INTRODUCTION

The purpose of this study was to investigate the impact a global payment model has on patient satisfaction of care provided at hospitals in the State of Maryland. Researchers indicated that reports of patient experience with healthcare services are better measures of healthcare quality than technical indicators (Isaac, Zaslavsky, Cleary, & Landon, 2010). Providers of care can have a better understanding of patient experience by analyzing the responses collected with the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey (Saxton & Finkelstein, 2012).

This study used secondary data from the Centers for Medicare and Medicaid Services (CMS) website collected with the HCAHPS survey. The HCAHPS survey has three sections: composite topics, individual items and global items (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). For this study, only composite topics and global items were used to assess patient experience of hospital inpatient services. The data collected with the HCAHPS survey are useful to determine the impact of a global payment model on patient experience of care at hospitals. The results of this study should add to the body of knowledge for investigations related to global payment models. Also, the results of this study should help human services professionals, healthcare managers, and policymakers to understand the impact of payment models on patient satisfaction of inpatient services and how to improve the services. The nine dependent variables in the study are analyzed throughout 3 years (2013 to 3014) to determine if

there is a statistically significant difference in patient satisfaction of care at hospitals post implementation of Maryland global payment.

Chapter 1 includes seven sections that introduce the reader to the study research problem. First, the background of the study which consists of a general understanding of the research problem. Second, the significance of the study for the intended audience. Third, the study research questions. Fourth, the definition of terms included in the research questions, the literature review, and in other sections of the document. Fifth, the research design describes the study methodology and design used to respond to the research questions. Sixth, are the assumptions and limitations sections which include methodological and theoretical assumptions and study limitations. Finally, Chapter 1 ends with the organization of the remainder of the study.

Background of the Problem

Escalating medical expenditures in the US has become an issue for the federal government due to increased national healthcare expenses for Medicare and Medicaid programs (Adamy, 2014; Riley & Rupp, 2015; Venkataraman, 2015). Elevated medical expenditures threaten individuals' ability to access healthcare services, limits the achievement of improved national health outcomes, and impact the nation's annual inflation and production (Dunn & Shapiro, 2015; Kumar, Ghildayal, & Shah, 2011). Not only does the US have the most expensive healthcare system in the word (17.2% of the gross domestic product [GDP]) when compared to the second most expensive system in Switzerland (12.4% of their GDP; Organization for Economic Co-operation and Development, 2017), but the quality of care is poor (Kavanagh, Cimiotti, & Abusalem, 2012). Consequently, the Centers for Medicare and Medicaid Services

(CMS) was created to lower the national healthcare expenditures and improve medical quality issues by creating alternative value-based reimbursement models (Rajkumar, Conway, & Tavenner, 2014), which are linked to clinical outcomes and patient satisfaction reports (Mohammed et al., 2016).

Similarly, one of the goals of the Affordable Care Act of 2010 (ACA) is to lower healthcare costs while healthcare quality improve and to achieve this goal CMS created new payment models under the hospital value-based purchasing (HVBP) program, which was designed to enhance the quality of healthcare services (Kristensen et al., 2014; Rajkumar et al., 2014). The inception of the Affordable Care Act of 2010 (ACA) transformed the healthcare industry by requiring healthcare providers to improve the quality of services provided to patients (Rak & Coffin, 2013). The interaction between patients and providers of care in an inpatient setting is assessed to improve clinical outcomes and patients' perspectives of care (Westbrook, Babakus, & Grant, 2014).

The federal government and the medical industry are investing resources in solving problems that are related to cost management and quality issues (Banka et al., 2015; Song, et al., 2014). The implementation of mandatory patient satisfaction measures through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey changed how healthcare services are assessed (Gable, 2011; Jeffers & Astroth, 2013; Kawaleca, Sagan, Stawowczyk, Kowalska-Bobko, & Mokrzycka, 2016; Kennedy, Caselli, & Berry, 2011; Lee, Abbey, Heim, & Abbey, 2016; Pulcini, 2014). The HCAHPS surveys are the primary source of a nationwide standardized patient experience report, that is used by healthcare consumers to compare the quality of care provided at different hospitals (Isaac et al., 2010).

Also, the HCAHPS surveys inform the healthcare industry about what matters to patients, which in turn is used by healthcare providers to improve patients' experiences along the continuum of care (Stein, Day, Karia, Hutzler, & Bosco, 2014).

The implementation of different payment options by the Centers for Medicare and Medicaid Services (CMS) is connected to its purpose, which is to increase coverage, lower cost, and improve the quality of services offered by healthcare providers (Rajkumar et al., 2014). For instance, the ACA started the hospital value-based purchasing (HVBP) program in 2013, which requires the execution of healthcare services based on the presentation of a superior value at acute care institutions (Haley, Zhao, & Spaulding, 2016; Henkel, 2015; Kavanagh et al., 2012; Kennedy et al. 2011; Ryan, Burgess, Pesko, Borden, & Dimick, 2015; Stanowski, Simpson, & White, 2015). Although created to reward hospitals based on the quality of healthcare services provided (Haley et al. 2016), it is not known if HVBP program through a global payment model in the state of Maryland improves patient experiences or not. The purpose of the current quantitative study is to determine if the global payment model applied to hospitals in the state of Maryland impacts patient experience.

The state of Maryland's current reimbursement system is a prototype designed to be adopted on a national scale if the model accomplishes CMS' expectations (cost reduction throughout 5 years; Patel et al., 2015). According to researchers, the implementation of the global payment model in the state of Maryland is an example of future collaborative efforts between federal and state agencies, which aim is to improve the national healthcare system. (Rajkumar, et al., 2014).

Different payment models were studied in the healthcare industry to assess their impact on patient outcomes and provider performance (Self & Coffin, 2017). However, no known study has examined the impact of a global reimbursement system concerning the patient's perception of the quality of care at hospitals during the years 2013, 2014, and 2015. The study design will use survey responses from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)to examine if they are changes of patient satisfaction before, during, and after the implementation of CMS' global payment model in the state of Maryland. For the analysis of the data, this study will use a one-way analysis of variance (ANOVA).

The theoretical framework adopted by this study is the primary provider theory (PPT) (Aragon, 2003). The PPT states that patients are the center of the provision of healthcare services, and provider behaviors influence patient satisfaction of healthcare services (Guarisco & Bavin, 2008). The advantage of PPT is its application to different healthcare businesses and environments while highlighting the relationship between a patient and providers of care (Aragon, 2003). According to the elements of the theory, patients are the only individuals that evaluate the quality of healthcare services (Aragon, 2003) This study used the HCAHPS survey public data from years 2013 to 2015 to investigate if Maryland's global payment model impacted patient satisfaction scores of hospital services.

The results of this quantitative study will demonstrate if payment models have a significant impact or not on patient HCAHPS scores of hospital inpatient services. Measuring the impact of payment models on patient satisfaction informs the federal government, healthcare managers, and human service professionals about how payment models may help hospitals to

improve healthcare services at lower cost. Also, the analysis of patient satisfaction scores under a global payment model is essential for the improvement of care transition and coordination.

Statement of the Problem

The creation of healthcare reimbursement or payment models resulted from federal and private efforts are set in place to transform how payments are made. Research literature on healthcare payment models and patient satisfaction indicates that fee-for-service (FFS) model allows volume payment and does not contribute to cost containment, while bundled payments contribute to cost reduction while quality is preserved (Huang, 2015; Ridgely, de Vries, J. Bozic, & S. Hussey, 2014; Ikegami, 2015; Miller & Mosley, 2016; Mohammed et al., 2016; Rajkumar et al., 2014). Despite the creation of different payment models, the national healthcare expenditure is expected to increase at a rate of 5.6% per year through 2025 (Centers for Medicare and Medicaid Services, 2017). It seems to be that the current payment models are not having a significant impact on the reduction of the national healthcare expenditures increasing rates.

Patient satisfaction is a critical area of hospital value-based purchasing and is used to improve care delivery (Rajkumar et al., 2014). The global payment model was implemented in the state of Maryland as a joint effort between the state and CMS to contain total cost of hospital services and at the same time improve the quality of services and clinical outcomes (Rajkumar et al., 2014). However, it is not known if the global payment model implemented in the state of Maryland during the year 2014 impacts patient satisfaction scores when comparing pre and post implementation of the payment system.

Different healthcare reimbursement models implemented by CMS use patient satisfaction of services provided at hospitals as an indicator of quality improvement and for the reimbursement of healthcare services. Researchers reported that with a pay for performance model, quality of care and patient satisfaction of healthcare services improved (Calikoglu, Murray, & Feeney, 2012; Elliot et al., 2015; Haley et al., 2016; Kennedy et al., 2011; Kristensen et al., 2014; Rosenau, Lal, Lako, & Piselli, 2012; Sutton et al., 2012). Hospital value-based purchasing (HVBP) is a reimbursement method that incentivizes healthcare providers based on the quality of services provided, which is supported by the accomplishment of clinical goals and by consumers through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) (Elliot et al., 2015; Haley et al., 2016). Therefore, although the adoption of value-based payment models has shown improvement in the delivery of care, it would be interesting to analyze if the global payment model has an impact on patients' rating of hospital services.

Purpose of the Study

The purpose of this quantitative study is to evaluate patient satisfaction rating across a three-year time frame (2013, 2014 and 2015) after the implementation of a global payment system. Researchers indicated that the outcomes of the implementation of the global payment model should result in cost reduction for healthcare services, which in turn may make hospitals more efficient with the services provided to patients (Rajkumar et al., 2014). Patient reports of hospital inpatient services are useful to understand the impact that payment models have on patient satisfaction of clinical services. Changes resulting from the implementation of a global payment model may lead to the improvement of the communication between patients and hospitals' clinical staff, patient's overall perception of the quality of care provided, and better

care transition. Therefore, efficient management of resources and improvement of patient ratings are expected to be rewarded under a global payment model.

The global payment model rewards hospitals who reduce cost by allowing hospitals to keep the balance of funds after expenses as profit (National Conference of State Legislatures, 2010). One way to implement lower costs is to provide preventive services instead of adopting a model that rewards hospitals for increasing the number of procedures (fee-for-service) (Rajkumar et al., 2014). If the model functions according to CMS' expectations, then providers of care should be implementing a system based on preventive measures to improve individuals' health and at the same time become more efficient with the management of financial resources. Therefore, the expectation is that a better quality of inpatient services should result in improved patient satisfaction ratings.

Significance of the Study

The U.S. healthcare system is moving in the direction of adopting new global payment models which are intended to improve patient's health and restrain the overall healthcare cost while incorporating quality indicators such as the HCAHPS surveys to measure patients' satisfaction with the provision of care. The expectation is that with the implementation of new payment models, providers of care and their stakeholders will be able to reduce healthcare costs, improve the quality of service provided, increase access to healthcare services, and as a result have a positive impact on patient satisfaction (Bosko & Hawkins, 2016; Dahl, Reisetter, & Riemann, 2014; Elliott et al., 2010; Martin, 2015; Rosenau et al., 2012; Sutton et al., 2012). If hospitals in the state of Maryland demonstrate that they can achieve CMS' goals, the state would be rewarded with economic incentives that should lead to improvements in the delivery of

healthcare and better health outcomes. It is expected that global payment models will influence how care is delivered across the nation.

Furthermore, to accomplish the benefits of a global payment model, it may be necessary to develop innovative strategies between healthcare providers and the federal government. In January 2014, the Centers for Medicare and Medicaid Services (CMS) announced a collaborative effort with the state of Maryland to launch a global budgeting payment model that aims to reduce healthcare service expenses and reimbursement cost, while improving patients' health (Rajkumar et al., 2014). The main characteristics of the global budget payment model for hospital services involve the achievement of substantial quality service expansion including declines in readmission rates and acquired conditions in hospitals. If the global payment model is found to be related to improved patient satisfaction in the state of Maryland, CMS should consider replicating the global payment approach nationwide.

This study examined variations in inpatient satisfaction ratings at hospitals. Data were collected through HCAHPS surveys pre and post implementation of Maryland's global payment model. According to researchers, the application of global payment models in different settings produced mixed results (Chen & Fan, 2016). Therefore, it is vital to examine which satisfaction ratings may show differences after implementation of Maryland Global Payment Model. The analysis of the global payment model within the inpatient setting permits this study to add to the current body of knowledge by identifying which factors are impacted and how hospitals can improve the quality of their services.

New methods have been developed across the US by hospitals to improve patient satisfaction scores with healthcare services as a response to federal requirements (Moore, Titler,

Low, Dalton, & Sampselle, 2015). This study is based on PPT to contribute to the body of knowledge, the assumptions of this theory presume that patient satisfaction is affected by their communication with providers of care (Aragon, McGuinn, Bavin, & Gesell, 2010). Also, according to findings in the literature, value-based payment models can be used to improve provider quality of service through the provision of incentives. (Guarisco & Bavin, 2008). Consistent with PPT, this study hypothesized that the implementation of Maryland Global Payment Model would positively impact patient satisfaction of healthcare services, resulted from improved communication with healthcare professionals.

Research Questions

The following research questions were examined in the study.

Primary Research Question:

R_1: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction, as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014 and 2015)?

Research Sub-questions:

R_2: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with nurse communication as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_3: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with doctor's communication as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_4: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with staff responsiveness as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_5: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with pain management as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_6: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with communication about medicines as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_7: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with

care transition as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_8: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does discharge information as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_9: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does the overall hospital rating as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

R_{10}: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient willingness to recommend the hospital as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

Definition of Terms

Alternative payment model. Also known by the acronym APM, alternative payment methods are defined as modifications of the fee-for-service model that reward providers for volume (Jackson, 2017). Providers that participate in APMs assume payment risk that is

associated with performance and cost from services (Jackson, 2017). This study discusses different APMs characteristics and their relationship with patient care.

Bundled payment. A set amount of money assigned for bundled healthcare services provided to patients with pre-defined health issues (Henkel & Maryland, 2015; Ridgely et al., 2014).

Care transition. Transitional care is defined as the service provided to patients during the transition from an inpatient to an outpatient service or home care. Also, the term includes the participation of medical personnel in the healing process for individuals or families (National Cancer Institute, 2016). This variable will be measured using HCAHPS survey question. This data will consist of the percent of patients who said they *strongly agree* when asked about their satisfaction with the understanding of their care when they left the hospital (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Communication about medicines. Communication about medicines involves the instructions provided by hospital personnel to patients about the right use of medications (Hospital Safety Grade, 2017a). This variable will be measured using HCAHPS survey question. This data will consist of the percent of patients who said *always* when asked about their satisfaction with the communication about medicines (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Communication with doctors. The doctor-patient relationship is critical for the delivery of quality healthcare services, where doctors can instruct patients about options that are beneficial for the improvement of a health condition (Matusitz & Spear, 2014). This variable will be measured using HCAHPS survey questions. This data will consist of the percent of patients

who said *always* when asked about their satisfaction with doctors' communication (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Communication with nurses. Patients' interactions with nurses during their stay at hospitals are assessed on HCAHPS surveys. Such interactions involve nurses' ability to communicate, listen, and respond to patients' needs (Hospital Safety Grade, 2017b). This variable will be measured using HCAHPS survey questions. This data will consist of the percent of patients who said *always* when asked about their satisfaction with nurse communication (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Discharge information. Discharge information refers to healthcare information provided to patients at discharge (Bartlett-Ellis, Werskey, Stangland, Ofner, & Bakoyannis, 2017). This variable will be measured using HCAHPS survey question. This data will consist of the percent of patients who said *yes* when asked if they know what to do during their recovery at home (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Fee-for-service. The fee-for-service (FFS) payment method tags each medical service with a fee. Unlike the hospital value-based payment (HVBP) models, FFS does not consider quality measures as a requirement for reimbursement (Ginsburg, 2012; Schroeder & Frist, 2013).

Global Payment. The Centers for Medicare and Medicaid Services implemented the payment model in the state of Maryland in January 2014 (Rajkumar et al., 2014). The global payment model provides a fixed amount of money to providers of care for five years. The goal of global payment is to increase healthcare services quality while reducing healthcare payments (Rajkumar et al., 2014).

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). The survey was developed by the Consumer Assessment of Healthcare Providers and Systems (CAHPS) and the Centers for Medicare and Medicaid Services (CMS) to evaluate the experiences of patients at hospitals (Elliot et al., 2015).

Implementation cycle. It refers to the pre, during, and post implementation of the State of Maryland Global Payment Model. The global payment model was implemented in the State of Maryland during the year 2014 (Rajkumar et al., 2014).

Overall hospital rating. Overall hospital rating is defined as the rating reported by patients about their overall experience at a hospital stay (Kemp, McCormack, Chan, Santana, & Quan, 2015). This variable will be measured using HCAHPS survey question. The data for this dependent variable consist of the percent of patients who gave their hospital a rating of 10 on a scale from 0 (lowest) to 10 (highest; Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Pain management. Pain management is used as an indicator of patient pain experience through the continuum of care (Reich et al., 2013). This variable will be measured using the HCAHPS survey question. This data will consist of the percent of patients who said *always* when asked about their satisfaction with pain management (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Patient satisfaction. Patient satisfaction is one of the principal measures in healthcare which considers the patient satisfaction of care and the accomplishment of individuals' expectations of healthcare services (Ndambuki, 2013). Patient satisfaction is the perceived quality of care received from providers (collected through a survey instrument) and is used as an

indicator that contributes to healthcare services quality (Mpinga & Chastonay, 2011; Yesil, Oztunc, Eskimez, Tanriverdi, & Kose, 2015).

Pay for performance. The pay for performance reimbursement model rewards providers based on the achievement of clinical outcomes and inpatient quality ratings (Eijkenaar, 2012; Henkel & Maryland, 2015).

Recommend the hospital. For this study, recommend the hospital is defined as patients' willingness to recommend inpatient services based on the overall patient experience at a hospital. The patient rating for this variable is influenced by the quality of services provided at a healthcare facility (Yavas et al., 2016). This variable will be measured using the HCAHPS survey question. This data will consist of the percent of patients who said *yes,* they would recommend the hospital to friends and family (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Responsiveness of hospital staff. Responsiveness of hospital staff is defined as the patient satisfaction of hospital staff in response to inpatient care (Hospital Safety Grade, 2014c). In other words, patients assess if the time it takes for hospital staff to respond to their problems is within their expectations. This variable will be measured using HCAHPS survey questions. This data will consist of the percent of patients who said *always* when asked about their satisfaction with staff responsiveness (Hchapsonline, 2016).

Top-box. Most positive or targeted responses selected from publicly reported data (Bartlett-Ellis, Bakoyannis, Haase, Boyer, & Carpenter, 2016; Elliot et al., 2010).

Research Design

A quantitative methodology was used for this study to measure the impact of Maryland Global Payment Model on patient satisfaction of hospital inpatient services. The process of quantitative methodology includes the utilization of theoretical concept, data collection instruments (Kelle, 2006), and hypothesis testing to predict the results of research studies (Draper, 2004). This study used a quantitative methodology to test the primary provider theory, the HCAHPS survey is the instrument used by hospitals to collect patient rates of provider services, and hypotheses were used to predict the study outcomes.

The one-way ANOVA design used three years of HCAHPS survey variables that were downloaded from the CMS Website (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016). The HCAHPS datasets were originally collected by Maryland's hospitals during years 2013, 2014, and 2015. The variables from this data set are classified into 2 areas, composite measures (communication with nurses, communication with doctors, responsiveness of hospital staff, pain management, communication about medicines, discharge information, and care transition) and global items (overall hospital rating and recommend the hospital; Al-Amin & Makarem, 2016; Giordano, Elliott, Goldstein, Lehrman, & Spenser 2010; Hcahpsonline, Centers for Medicare and Medicaid Services, 2017).

The independent variable for this study is time, which represents the scores collected with the HCAHPS survey during the implementation cycle of Maryland Global Payment Model. Besides, seven composite measures and two global items are the dependent variables. The state of Maryland implemented the global payment model during year 2014, and this study uses data

from years 2013 to 2015 collected from hospitals' inpatient service customers. This study will use the one-way NOVA on SPSS to determine if there were any significant changes over time.

Assumptions and Limitations

Assumptions

Axiology consists of the study of values and how knowledge is used for science (Handriana & Swastha-Dharmmesta, 2013). Research philosophy under the axiology lenses considers investigators' ethical participation, which is the integration of values and factors that are appropriate for humanity (Biedenbach & Jacobsson, 2016; de-Hoyos et al., 2013; Guevara-López, Altamirano-Bustamante, & Viesca-Treviño, 2015). The improvement of patients' health through the delivery of quality services seems to be the right path to add value to healthcare consumers (Kennedy et al., 2011). Access to care is essential for individuals and families in a society that seeks to improve community health by using a patient-centered model.

The study on Maryland hospitals' patient satisfaction is entirely free of research bias since hospitals gather patients' ratings and then submit them to CMS to comply with the reporting process, which intention is to improve the environment to match patients' values and expectations that should lead to improved health outcomes. Bias in research studies becomes an ethical concern that is contrary to the purpose of the study. In quantitative research, the researcher does not participate in the collection of secondary data. Thus, the data collected from the CMS website for the study was not influenced by research bias.

The ontological view searches the truth as it relates to reality, does the implementation of the Maryland Global Payment Model impacts patient satisfaction in an inpatient setting? Previous investigations defined ontology as a branch of metaphysics that uses assumptions to

study the things of the world (Chatterjee, 2013; Handriana & Swastha-Dharmmesta, 2013; Kim & Chung, 2014; Kun & Brenner, 2015). Researchers use questions and hypothesis to understand the world or the subject studied. The purpose of this study is to determine if the global payment model or all-payers model impacts patient ratings of hospitals by analyzing pre and post implementation of the payment model.

The epistemological approach questions how researchers get to a result or conclusion. Researchers emphasized under the epistemological view, that knowledge is obtained by discussing backgrounds, foundations, approaches, organization, and reality the world (Chatterjee, 2013; Handriana & Swastha-Dharmmesta, 2013; Kun & Brenner, 2015; Ruwhiu & Cone, 2010). This research study seeks to understand if there are a cause and effect between the payment model implemented by CMS in the state of Maryland and patients' perception of care provided at hospitals during years 2013, 2014, and 2015. In order to confirm the latter, it is necessary to access different sources that address the topic. Another is to comprehend the policies that guide the processes as they relate to the collection and dissemination of data. Moreover, the use of statistical methods to determine the impact that one factor has on others is helpful to understand if there is a statistically significant difference from one period to another.

Primary provider theory is the theory used in this research study. The theory is used to explain the environment in which patients and providers of care interact. Assumptions of the PPT indicate that providers of care behavior and exogenous factors (not related to the provider-patient interaction) have a significant impact on patients' perceptions (Aragon et al., 2013). The interaction between (a) providers of care, (b) patients, and (c) the environment in which care takes place are essential factors that assist hospitals in accomplishing a patient-centered

approach. The theory fits well with the proposed study, as it assumes that patient interaction with doctors, nurses, and clinical staff will influence patient satisfaction. The global payment model is considered an external factor that may impact how care is delivered and therefore may impact the patient experience.

Different factors seem to influence patient satisfaction of the care received in hospitals (Aragon & Gesell, 2003). As noted by researchers, patient satisfaction is influenced by the type of services provided at hospitals, which include clinical staff assistance and response time (Aragon, 2003; Guarisco & Bavin, 2008). Certainly, the variables used in this study are supported by PPT theory, which supports the idea that existing elements in the provision of care affect patients' perceptions. Therefore, it is necessary to test the theory to see if its assumptions are supported based on the one-way design using ANOVA. The current study will look at patient's ratings related to their interaction with doctors, nurses, and staff members.

Examining the data collected from the HCAHPS survey results can help providers of care to improve the relationship providers-patient at inpatient hospitals. For example, HCAHPS responses from an acute care and trauma center hospital were analyzed to identify the strongest predictors of patient satisfaction, which were listed as doctors' respect; physicians listening to patients; nurse paying attention; physicians clarifications; and efforts to control pain (Kahn, Lannuzzi, Stassen, Bankey, & Gestring, 2015). According to researchers, efforts should be set in place by hospital leaders to support relational characteristics of care and communication assistance of care providers (Zarei, Daneshkohan, Pouragha, Marzban, and Arab, 2015). It is expected that the findings of this quantitative study will advance knowledge in areas of patient satisfaction scores of the quality of care at hospitals under a global payment model.

It is also assumed that HCAHPS survey participants for years 2013, 2014, and 2015 understood the questions provided and responses were consistent with the perception of care received from healthcare providers. Previous studies recognized the influence of existing factors on subjects' responses to research instruments (Allen et al., 2014; Krumpal, 2013; Taylor, DeMers, Vig, & Borson, 2012; Traumann-Lengsfeld & Herrmann, 2014). Unbiased responses to survey questions support investigators' effort to advance knowledge. Therefore, for this investigation, it is assumed that patients' responses to HCAHPS surveys were free from the influence of cultural belief, mental health disorders, language or literacy barriers, subjects' attitudes, or group pressures.

Limitations

For this study, the percentages of patients who endorsed the highest ratings on the HCAHPS questions will be examined across time. Providers with fewer than the required HCAHPS surveys in a one-year are not included in the datasets (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017; Centers for Medicare & Medicaid Services, 2014; Elliott et al., 2010). The first 300 surveys collected by the hospitals are sent as a quarterly report to CMS (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). The population sampling for this study consists of all 42 hospitals in the state of Maryland. This study included all Maryland hospitals that had HCAHPS data. The data set reported by CMS included different cohorts of participants across the implementation cycle (years 2013, 2014, and 2015).

This study used a non-experimental design. Quantitative research uses statistical analyses to examine a significant amount of data (McCusker & Gunaydin, 2015). The statistical method for this study was limited to a one-way ANOVA test, and data were analyzed from 2013 to 2015.

From the 11 HCAHPS items, nine were included in this study for analysis. This study excluded HCAHPS individual items, which were cleanliness and quietness of hospital environments since these items were not related to hospital staff communication with patients during the delivery of care. Also, the HCAHPS individual items were excluded from this study to be consistent with PPT. The same hospitals were analyzed over time to measure if patient satisfaction significantly changed due to the implementation of Maryland Global Payment Model.

Organization of the Remainder of the Study

Chapter 1 provided the underpinning for this quantitative study. The introduction, background, and purpose of the study provided relevant information about Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) for Maryland's licensed inpatient hospitals on the quality of care provided. The study is significant because healthcare managers and policymakers can examine the impact of reimbursement methods on patient satisfaction with healthcare services. The primary research question and sub-questions relate to the potential impact of Maryland's global payment model on items that are present in the survey instrument for years 2013, 2014, and 2015.

The definition of terms lists the vocabulary used in the study. A blueprint of the research design creates a better understanding of the study methodology and design. A brief description of the data collection, statistical method, instrument, and analysis are also included in Chapter 1 under the research design section. Finally, the assumptions and limitations section briefly discussed this study and other topic related articles assumptions and limitations.

Chapter 2 provides an overview of existing research and scholarly literature about different reimbursement systems and inpatient HCAHPS ratings. Other sections included in

Chapter 2 are the study methodology, the theoretical framework, literature review on the topic, a description of the study findings, and an analysis of other studies' methodology and procedures. Chapter 3 describes the quantitative method employed in the study, the research questions and hypothesis, population and sample, instrument, and ethical considerations.

Chapter 4 includes the application and description of data analysis performed and the results presented in tables. Other elements included in Chapter 4 are the description of the sample and hypothesis testing. Finally, Chapter 5 presents the study findings, discusses the study's results and implications, and provides recommendations for future studies on global payment models and the quality of inpatient services at licensed hospitals.

CHAPTER 2. LITERATURE REVIEW

Included in Chapter 2 is a literature review on healthcare payment models and HCAHPS survey measures. This section describes the methods employed to gather literature that supports the study problem. Also, a description of the study theoretical orientation is provided followed by a comprehensive literature review on payment models and HCAHPS survey applications. Chapter 2 includes findings from the review of the literature, a critique of research methods used in other studies, and ends with a summary of the chapter.

Methods of Searching

The search strategy used to collect published and unpublished studies include databases from Business Source Complete, ProQuest Central, ProQuest Education, ProQuest Medical Database, PubMed Central, and Summon. The selection of articles from consulted databases was made based on the title of the studies, information located in the abstracts, and keywords provided by the authors. Keywords were also taken from the variables of this study to search across different databases. A combination of words was used to find literature related to HCAHPS variables and healthcare payment models.

The keywords for this study included *patient satisfaction of care, payment models* (such as global payment and fee-for-service) *Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, healthcare quality, healthcare cost, patient satisfaction, healthcare survey, Maryland global budget payment, and healthcare quality measures.* Also, the reference sections from all articles were reviewed to find additional literature related to patient satisfaction, HCAHPS survey, and healthcare payment models. Finally, articles considered for

inclusion in this study were limited to English publications from peer-reviewed journals, databases, and other public sources.

Theoretical Orientation for the Study

Patient experience is one of the primary domains of the primary provider theory (PPT). The main focus of PPT is on the quality of the relationship between patients and healthcare providers as a way to improve patient satisfaction. (Guarisco & Bavin, 2008; Moore et al., 2015). Researchers concluded that the quality of care provided to patients under a global budget model in the state of Massachusetts was greater when compared to other states with similar residents (Song et al., 2014). The improvement of the quality of care provided at hospitals under a global payment model requires additional care coordination and increased focus on the transition of care and preventive services (Rajkumar et al., 2014). To determine if the Centers for Medicare and Medicaid Services' (CMS) global budget model influence the relationship patient-provider in the delivery of care, this study will investigate if Maryland's global budget model is associated with changes to hospital quality ratings.

Providers and patients play essential roles in the delivery and assessment of healthcare services. The ideologies related to PPT assume that provider competency is not enough to influence the perceptions of patients, providers are accountable for the quality of care provided, and patients are the most qualified individuals to rate the quality of care (Aragon et al., 2010). Patient-perceived quality of care at hospitals is the outcome of fundamental elements that are related to hospital staff response to care (Guarisco & Bavin, 2008). Healthcare providers interactions with patients, and patient consent to approve or disapprove the overall quality of care are elements included in HCAHPS survey (Elliot et al., 2010).

Elements of PPT are included in the HCAHPS survey to measure the quality of patient experience. The HCAHPS survey collects patient ratings of hospital staff communication and responsiveness to patient care, the environment in which services are provided, and overall patient recommendation of hospitals (Kahn et al., 2015). Indeed, HCAHPS survey is used to assess if healthcare services are delivered to meet patient expectations. Through HCAHPS surveys, healthcare services at hospitals are assessed to rate the quality of care provided to patients, which is also used for the approval of reimbursements.

Healthcare providers in the US are creating new models of services with the purpose of improving patient satisfaction, which aligns with PPT principles (Aragon & Gesell, 2003). According to previous studies, the implementation of low-cost strategies through global budget models helps to improve the quality of services, which benefit the patient experience (Song et al., 2014; Yi, Yan, Xingyi, Jing, & Pengqian, 2016). Unlike the FFS model, which reimburses providers for each service (Ginsburg, 2012), the purpose of the global budget model is to reduce healthcare cost and deliver better care at hospitals (Pines, Farmer, & Pimentel, 2014). The creation of new value-based purchasing models such as the global budget model takes into consideration the patient experience as a measure of value to reimburse hospitals (Smith, 2014).

From the patient perspective, physicians and nurses have a unique role in the delivery of care. For instance, physicians in an emergency department are perceived by patients as authorities in the clinical setting, while nurses play a secondary role (Aragon, 2003). Therefore, changes in hospital staff roles due to the influence of internal or external elements could impact patient ratings of hospital services. As stated in PPT, the communication between healthcare

providers and patients needs to be coordinated within hospital settings to improve patient satisfaction ratings (Guarisco & Bavin, 2008).

The objective of this study was to contribute to the healthcare management field by using PPT as a framework to examine any changes in patient satisfaction after implementation of different payment models. The Centers for Medicare and Medicaid Services (CMS) are creating new payment models through its value-based purchasing programs, where patients ratings of the quality of care at hospitals are tied to financial benefits. According to the principles of PPT, healthcare institutions are accountable for the type of care provided to patients, and patients value the efforts set in place for their wellbeing (Aragon et al., 2010). The implementation of different payment models at hospitals may cause changes in the roles of the primary provider, and as a result, patient ratings of hospital service quality may change.

Review of the Literature

Health Care Payment Models

Trillions of dollars are spent each year in the U.S. healthcare system to reimburse hospitals for expensive medical claims. For instance, healthcare expenditures in the US are currently over $2 trillion and account for more than 17% of the country's gross domestic product ([GDP] Beilfuss & Thornton, 2016). One of the main reasons for rising healthcare expenditures has been the application of fee-for-service payment models, which historically reimbursed providers of care for volume rather than value (Hawk, 2013). Due to the increase in healthcare expenditures, the Department of Health and Human Services (HHS) has changed the way how healthcare services are reimbursed by incorporating value-based payment models (Hawk, 2013). It is expected that the transition from fee-for-service to value-based purchasing models will

contribute to lower healthcare expenditures and improve the quality of the services delivered at hospitals.

Due to the growth of healthcare expenditures nationwide, it is necessary to take a closer look at the U.S. healthcare reimbursement system to control escalating costs (Davis, Davis, & Schmelzle, 2013). To address rapidly rising healthcare costs, the Centers for Medicare and Medicaid Services (CMS) created alternative payment models to improve the patient experience at a lower cost (Huang, 2015). The global budget model implemented by CMS in the state of Maryland during 2014 (Rajkumar et al., 2014), is an example of the implementation of a payment model intended to resolve rising cost problems and improving the patient experience.

Fee-for-Service Model

Fee-for-service (FFS) reimbursement model does not reward providers of care for improved health outcomes or cost reduction. Under the FFS model, providers are reimbursed with a fixed fee or price assigned to the type and quantity of services provided to patients (Ginsburg, 2012). It is assumed that the implementation of FFS model incentivizes hospitals to provide additional healthcare services that are not needed while maximizing their financial benefits (Ikegami, 2015). Therefore, CMS created alternative payment models to move away from FFS model (Clough, Richman, & Glickman, 2015).

The change from a FFS model rewards providers based on quality and not the quantity of the services which may contribute to improving healthcare services and reduce costs. The Department of Health and Human Services (HHS) communicated that it would incrementally substitute Medicare FFS reimbursements with alternative payment models to control rising medical costs and connect payments with quality measures (Schroeder & Frist, 2013). The

alternative model introduced by CMS after FFS is called the bundled payment model (Malinak, Press, Rajkumar, & Conway, 2017). The control of healthcare expenditures may require changing how providers are reimbursed (Schroeder & Frist, 2013).

Bundled Payment Model

The bundled payment model is based on agreements made between payers and providers to deliver healthcare services at a set price (Rana & Bozie, 2015). Bundled payments are reimbursed based on diagnosis classification, per event, or as part of a capitated arrangement (Henkel & Maryland, 2015; Kavanagh, Cimiotti, & Abusalem, 2012). Based on the bundled payment model, medical diagnosis is the classification of patient illness into groups or what is called diagnosis-related groups (DRG), and surgical treatments are an example of medical events (Henkel & Maryland, 2015). One similarity between bundled payments and global budgeting is that both models function under a capitated system.

Participation of healthcare providers under the bundled payment model can be financially challenging. An issue found during the implementation of the bundled payment method was how to set an appropriate fee for bundled processes or services (Ridgely et al., 2014). For providers, the highest risk for the implementation of the bundled payment model is underestimating the costs of the bundled services. (Ridgely et al., 2014). Similarly, under a global payment budget, a fixed budget is assigned for a number of years, with the expectation of improving hospital services and costs (Kavanagh et al., 2012).

Pay-for-Performance Model

Under a pay-for-performance model, providers are rewarded based on the accomplishment of clinical quality measures or outcomes reported annually (Henkel &

Maryland, 2015; Rosenau et al., 2012). Rewards and penalties for providers are distributed according to a linear distribution function, where funds for performing providers are funded from underperforming institutions' penalties (Calikoglu et al., 2012). Therefore, providers are rewarded or penalized depending on their accomplishment of pre-identified metrics at the end of each period. Measuring pay-for-performance may include provider organizational structure clinical processes, and patient outcomes (Blustein, Weissman, Ryan, Doran, & Hasnain-Wynia, 2011). The challenge with pay-for-performance models is that performance is not linked to patient experience and providers may increase the volume of services over quality to gain higher reimbursements (Henkel & Maryland, 2015).

Moreover, despite the financial benefits of pay-for-performance models applied to healthcare providers, existing challenges need to be addressed. The implementation of pay-for-performance models contributed to the increase of health disparities for different groups of patients (Blustein et al., 2011; Roseau et al., 2012; Stanowski et al., 2015). Pay-for-performance models, which are systems of rewards and punishments in the form of added financial benefits or penalties, influence clinical staff behavior and patient outcomes (Rosenau et al., 2012). Alterntively, a global payment model rewards hospitals for cost reduction, quality improvement, and improved patient experience (Pines et al., 2014).

When adopting pay-for-performance model providers should consider if the model will influence patient satisfaction of care, improve clinical outcomes, and satisfy payers' expectations. With an increasing emphasis on patient surveys and their association with reimbursement benefits, healthcare providers need to be up-to-date with federal requirements that are associated with the efficient management of financial resources and improved patient

ratings in healthcare delivery (McCaughey, Stalley, Williams, & Winn, 2013). The healthcare industry environment is challenging for hospitals as they compete to improve patient satisfaction rates while reducing healthcare expenditures. As the healthcare environment is constantly changing, providers of care need to determine if a pay-for-performance model is justified under CMS mandated quality improvement and cost reduction requirements.

Furthermore, the implementation of a pay-for-performance model in the international setting may differ based on unique factors that are present in each country.

Although other countries adopted pay-for-performance models, the outcome of such programs are not convincing and need vigorous assessments to determine their impact on the quality of care (Eijkenaar 2012; Kristensen et al., 2014; Sutton et al., 2012). Each country has unique characteristics that should be taken into consideration when planning to implement a pay for performance model. Similarly, the implementation of the global budget model in the state of Maryland should be analyzed over time to measure if the application of the model has a significant impact or not on hospital inpatient service ratings and costs reduction.

Global Budget Model

The global budget model is a fixed budget assigned to pay for patient expenses at hospitals during a specific period. According to the agreement between CMS and the state of Maryland, third-party payers including government payers will pay a fixed amount of dollars from 2014 to 2019 to hospitals for healthcare services (Pines et al., 2014; Rajkumar et al., 2014). The expectation is that during the 5 years of the agreement, Maryland's healthcare system will reduce expenditures by more than $300 million (Patel et al., 2015). If the state of Maryland

accomplishes the objectives set by CMS, it will retain the savings as a reward for the efficient administration of the funds.

Furthermore, the implementation of a global payment model is perceived as a solution to rising health care cost (Chen & Fan, 2015). A study in China found that there was more cost reduction using the global budget model than with the FFS model (Huang, Liu, Yang, Li, & Fang, 2016). Unlike FFS, the employment of global budget model limits the volume of healthcare services and price increase to remain within the approved budget (Chang et al., 2015). The application of a global budget in the national or international environment contributes to better care and lower healthcare cost. Annual increases in healthcare expenditures overseas lead European countries to the adoption of a global budget model. For instance, moving from the FFS model in Taiwan has helped to stabilize healthcare expenditures by less than 4% from one year to another (Yang-Kyun, 2012). The adoption of a global budget empowers providers to strategize on reducing healthcare service while keeping quality and cost under control.

In many cases, the global budget model has shown to be a compelling factor that helps to contain rising medical prices. An example is the positive effect of the model on patients with hypertension, who can access lower cost services due to the financial expectations of healthcare providers (Huang et al., 2016). The global budget model rewards providers for keeping patients healthy (Henkel & Maryland, 2015). Therefore, it is expected that the application of a global budget model in the state of Maryland will influence hospital quality ratings.

Hospital Consumer Assessment of Healthcare Providers and Systems

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) objective was to provide a useful instrument that publicly reports patient experiences while it

measures the quality of care provided by health care services (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). The assessment tool was implemented during the mid-2000s by the collaborative efforts between consumer assessment of healthcare providers and systems (CAHPS) consortium and the office of CMS, after 3 years the Department of Health and Human Services (HHS) began to publish quarterly reports to the public (Elliot et al., 2015; Kemp, Chan, McCormack, & Douglas-England, 2015). The practice of publishing hospital reports has helped the healthcare industry to improve its efforts in care delivery to patients. Publicly available data allow researchers to perform different investigations with the objective of disseminating scientific knowledge that is used to advance the practice.

The process of measuring patient experience begins after healthcare service is provided and results may differ according to provider experience. That is, other elements that influence the healthcare environment may not be considered when measuring patient experience of care (Mohammed et al., 2016). Although HCAHPS surveys are an essential and reliable assessment tool, its focus is based on healthcare delivery and not on medical staff experience (Elliot et al., 2015). Every provider must collect patient experiences through the HCAHPS survey instrument to be reimbursed for healthcare services (Isaac et al., 2010).

The HCAHPS survey questions are based on consumer inpatient service experience, where patients respond to questions from 11 measures (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). The 11 HCAHPS measures are divided into seven composite measures (communication with nurses and doctors, staff responsiveness, pain management, communication about medicines, discharge information, and care transition), 2 individual items (cleanliness and quietness of patients), and 2 global items (overall hospital rating and

recommend the hospital; Banka et al., 2015; Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Data collected from HCAHPS measures are convenient for statistical analysis and control of healthcare quality and costs reduction. Further study is necessary to measure if the state global budget model influences HCAHPS survey ratings of Maryland's hospitals.

Communication With Nurses

Communication with nurses is a vital factor that helps to improve patient perspective of care. Providing patients with nurses' information and schedules during inpatient care, helped to improve the patient-nurse communication when recovery services were needed (Kennedy, Craig, Wetsel, Reimels, & Wright, 2013). Nurses should be proactive when interacting with patients to ensure that there is appropriate communication (Brooks-Carthon, Kutney-Lee, Sloane, Cimiotti, & Aiken, 2011; Long, 2012). Consequently, the roles of nurses in healthcare settings prove to be critical for the improvement of patient care through better communication (Long, 2012).

Patient satisfaction is usually related to care provided by physicians. However, the roles of nurses in obstetrical units have shown to be as important as the role of physicians, where nurses educate, coach, assist, and provide care routinely to women in labor (Aragon et al., 2013). Therefore, the influence of nurses on patient satisfaction may depend on the effectiveness of the primary provider role. In addition, according to the results of the study, the nurse's influence remains constant regardless of the adjustment of other variables (Aragon et al., 2013). Just like physicians and other healthcare providers, nurse's roles in a patient-centered environment can positively influence patients' behavior which is supported by PPT (Aragon et al., 2013).

To measure the influence of patient-centeredness on patient satisfaction in a hospital obstetric unit, researchers analyzed Medicaid patients' data collected from the 2003 Press Ganey

National Inpatient Database. The cross-sectional study analyzed 900 Medicaid patients in the US using a multigroup structural equation modeling to examine the influence of nurse's centeredness on patient satisfaction (Aragon et al., 2013). The study results support the idea that when patient care is centered in obstetric services units, the variability of total patient satisfaction is influenced by almost 70%.

Communication With Doctors

Effective communication between doctor and patient may result in improved patient self-management of care and better clinical outcomes. Namely, patient communication with doctors is vital with an active interaction that influences a patient's behavior with the compliance of doctors' recommendation, which leads to better care outcome (Matusitz & Spear, 2014). As doctors and patients collaborate to improve health outcomes and service delivery, providers can learn from the experience and adjust processes to deliver better care (Al-Amin & Makarem, 2016; Hu et al., 2016). For that reason, CMS created the HCAHPS instrument, which is useful for measuring patient experiences over time to improve the quality of healthcare services (Lang et al., 2013).

Doctor communication was found to have a significant association with patient satisfaction of care. A quantitative study evaluated 182 patient responses to HCAHPS survey from trauma and acute care surgery services to discover that doctors' communication with patients is one of the highest predictors for providers with high-quality service (Kahn et al., 2015). Patient responses to the HCAHPS survey reflected their view of doctors as professionals who listen and ensure that they understood the instructions provided. This quantitative study supports the tenets of PPT which assumes that the primary provider is interested in patients'

well-being, and effective doctor-patient communication is needed to improve patients' behaviors (Aragon & Gesell, 2003).

Furthermore, the development of doctors and other medical staff to improve communication with patients does not always transform into better communication, especially when analyzes are done with different research instruments. For instance, the result of a quasi-experimental pre-post design with 5,020 patients surveyed with HCAHPS instrument, did not show significant differences after intervention (Seiler et al., 2017). The authors of the same study administered an adjusted non-HCAHPS physician-specific patient experience survey (NHPPES) to 1,990 patients and found that the interaction between trained doctors (to better communicate with patients) and their communication with patients was translated into better healthcare outcomes (Seiler et al., 2017). Healthcare leaders should analyze patients' data using different approaches, methods, or models to improve communication and response to patients' needs.

Responsiveness of Hospital Staff

Hospital staff participation in the delivery of care can also positively impact patient satisfaction of the quality of care. Staff responsiveness to patient's care was one of the most influential factors when comparing HCAHPS data of patient top-box (the most positive category) responses between March of 2008 and March of 2009 (Elliott et al., 2010). Although the study results were similar for most of the measures, an increase in the mean percentage of response rates can make a difference in reimbursement benefits. The evaluation of staff responsiveness on HCAHPS survey is instrumental in discovering if patient perceived staff responsiveness to care as high-quality (Long, 2012).

The participation of non-clinical professionals in the delivery of care also has a positive effect on patient ratings of healthcare services. The involvement of pharmacists in the education of patients about their medicines helps to improve patient satisfaction reports (Soric, Glowczewski, & Lerman, 2016). It seems to be that responses to patient needs from hospital staff are not limited to clinical service only, but to other service areas that support provider efforts. Hospitals should plan and implement strategic practices that support staff collaborations to reduce service cost while improving communication with patients and their medical issues.

Pain Management

Patient pain management is another measure on the HCAHPS survey that is known to influence patient expectations in healthcare delivery environments (Schroeder et al., 2016). Previous research found that patients were more inclined to respond positively to HCAHPS pain management ratings after providers demonstrated that they proactively worked to reduce and control pain (Hanna, Gonzalez-Fernandez, Barrett, Williams, & Pronovost, 2012). Therefore, having a system in place to efficiently manage patient pain should be a priority for providers of care, which in turn may result in the achievement of better-quality ratings on HCAHPS survey results.

Data collected through HCAHPS surveys have been analyzed to identify areas of concern resulted from the interaction between providers and patients. For instance, data collected with HCAHPS survey helped healthcare providers to improve patient satisfaction with pain management by adjusting the quality of nursing care service (Schroeder et al., 2016). The results obtained from HCAHPS surveys are used to improve provider performance and at the same time support hospital compliance with patient communication.

Researchers reported that patient pain management is a constant problem for care providers. While most of the patients in obstetrics (60%) and orthopedic (74.6%) settings preferred to be treated when experiencing pain, it was reported that patients' main fear is first about adverse reactions from medications, second becoming a drug addict, and third any increased cost of medications (Ramia, Nasser, Salameh, & Saad, 2017). To overcome patient fears, providers should be following protocols that help avoid potentially bad outcomes. Ineffective pain management practices may influence patient fear of such challenges. For that reason, healthcare management has to ensure that the medical staff is trained to manage patients' clinical issues, have excellent communication skills, and that patient care is central to all organizational activities.

Patient interest in the management of pain should be analyzed to improve their perception of the quality of realistic pain management services. Researchers adopted a cross-sectional questionnaire and data collected were analyzed using Pearson X^2 test or Fisher's test (depending on the number of cell counts) to measure patient satisfaction of acute pain management (Ramia et al. 2017). The findings revealed that there were inconsistencies in patient pain management that lead to patient dissatisfaction. The application and evaluation of HCAHPS surveys to assess patients perceptions of care help providers to understand what matters to patients to improve patients ratings and secure financial benefits (McCaughey et al., 2013).

Communication About Medicines

Communication about medicines is a measure of HCAHPS composite domains that assesses providers' ability to communicate well with patients about their medications (Kahn et al., 2015). To communicate well with patients about their medications, nurses and physicians

need to be attentive to patients concerns, be polite and show respect, and give clear communication (Bartlett-Ellis et al., 2016). Admittedly, if the patient is centered in the service process, providers should pay attention to what matters to patients and ensure that the information provided was well understood. Remaining consistent with patients' communication about medicines and communicating clearly, help to improve patient safety after discharge (Bartlett-Ellis et al., 2016).

Physician and nurses are the primary providers of healthcare services who interact with patients about the use of medications. However, it was found that the association of nurse instructions and communication about medicines with patients were higher when compared to physicians' communication with patients about the use of medications (Bartlett-Ellis et al., 2016). The role of nurses and physicians with communication about medicines can effectively influence patient behaviors on the use of medications at discharge.

Discharge Information

Discharge information involves patient's education on the use of medication or information provided to improve patient health condition while at the facility and after discharge. Healthcare providers should always have resources available for patients in different formats, such as written instructions, placing printed material in the patient room, face to face communication, and post-discharge communication to evaluate compliance with instructions (Long, 2012). Discharge information should be a continuous educational process that aims to prepare patients for the effective management of their health condition. Also, as a tool to evaluate patient understanding of their discharge information, providers are required to contact patients after discharge using the Hospital Consumer Assessment of Healthcare Providers and

Systems (HCAHPS) survey to assess patients' perceptions of their discharge experience (Lang et al., 2013).

Data collected with HCAHPS survey instrument are used to improve patient outcomes before and after discharge (Bartlett-Ellis et al., 2017). For instance, to improve patient outcomes in a clinical setting, it was vital to know what the patient value, so hospital staff can design interventions that are adequate to improve medical outcomes (Williamson et al., 2012). The application of different intervention options and their outcomes can be analyzed to identify best practices for the improvement of patient satisfaction and clinical results at discharge.

Hospitals that invest time and resources to improve patients' education on discharge information have noticed improvements in inpatient services. A study noted that when patients are instructed during their stay, and follow-up after leaving the facility, there is a decrease in the number of readmissions (Kennedy et al., 2013). Hospitals benefit from reducing patients' readmissions rates, which is translated into cost reduction and improved patient outcomes. Healthcare providers are accountable for patient safety with the use of medications during care transition (Bartlett-Ellis et al., 2016).

Care Transition

Care transition was defined as the transfer of patients from one healthcare facility to another location as regulated by Medicare part A (Brock et al., 2013). The measure was added to HACAHPS survey during year 2013, right after the enactment of the affordable care act of 2010 (DelBoccio et al., 2015). Discharge information is a composite measure on HCAHPS survey and is made up of three questions (Hcahpsonline, Centers for Medicare and Medicaid Services,

2015). Patient responses to the measure of discharge information inform providers of care, third-party payers, and the public about the current quality of care at a facility.

The HCAHPS survey questions on care transition measure the patient's experience during and after leaving the healthcare facility. Patients' feedback from HCAHPS survey for care transition include the patient experience at the facility, understanding of medical instructions about the healthcare condition, and understand the importance of taking medications (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Patient care does not end at discharge anymore but is a continuous process that is evaluated with HCAHPS survey to measure patient health improvement and the quality of healthcare services (Volland & Fryda, 2015). Although the last step in healthcare delivery process, care transition is also a factor that is taking into consideration for overall service rating.

Overall Hospital Rating

Overall hospital rating is an HCAHPS measure used to assess hospitals ability to deliver quality services based on patients' ratings. Specifically, from the overall hospital rating measure, patients select a number between 0 (*worst provider*) and 10 (*best provider*) to reflect their approval or disapproval of the service provided (McCaughey et al., 2013). In other words, patient rating of providers overall services is associated with patient experiences derived from their inpatient stay.

There is a connection between HCAHPS overall hospital rating and the composite measures. Patient experience with HCAHPS composite measures reflects patient willingness to rate providers services (Westbrook et al., 2014). That is, patient communication with providers about healthcare medications during an inpatient stay can make a difference between a high or a

low hospital overall rating (Maher et al., 2015). Providers should invest time and effort to develop employees' clinical skills so that patients are more likely to recommend providers to friends and family.

Different factors are associated with surgical patients' positive response to HCAHPS overall hospital rating measure (Maher et al., 2015). For instance, researchers analyzed 2,758 patients' positive response to HCAHPS overall hospital rating *9 or 10* with a forward selection multivariate analysis and backward elimination multivariate analysis. This statistical analysis found that patient satisfaction with hospital overall rating is associated with surgical patient reduced length of stay, increased surgery time, reduced drug prescription, increased pre-intraoperative midazolam quantities, decreased length of stay in post-anesthesia care unit (PACU), and cut last PACU numerical score scale pain results (Maher et al., 2015). In other words, patient positive rating of *9 or 10* on the overall hospital rating is aligned with superior quality of perioperative treatments and events. Therefore, this study purpose is to analyze if the implementation of the global payment model in the state of Maryland has a significant impact on HCAHPS' composite measures and global items.

Recommend the Hospital

Patient willingness to recommend the hospital is a global item on HCAHPS survey that is measured to assess patients' preferences on hospital recommendation (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Patients are asked on the survey instrument if they would definitely recommend the hospital to families and friends (Dockins, Abuzahrieh, & Stack, 2015). Responses to recommend the hospital on HCAHPS survey is an indication of patient satisfaction of provider behavior during the provision of healthcare services (Long, 2012).

However, patient responses to recommend the hospital may vary due to external factors that are not controlled by providers.

As with other measures or items on the HCAHPS survey instrument, different variables may influence patient willingness to recommend the hospital. It was found that patient disposition to recommend a healthcare provider were influenced by the facility admission requirements, doctors and nurses service, and lodging area (Otani, Waterman, Faulkner, Bouslaugh, & Dunagan, 2010). Indeed, patient willingness to recommend a hospital may vary in different settings due to providers behavior and the management of resources. Another factor to consider is the influence that payment models may have on provider performance and any impact on patient willingness to recommend a healthcare facility.

Clinical staff interaction with patients can influence patient willingness to recommend a healthcare provider. The association of healthcare quality and willingness to recommend the hospital was found to be highly motivated by nurses' performance (Yavas et al., 2016). Similarly, researchers concluded that overall hospital rating was mostly associated with HCAHPS hospital staff units (Kemp et al., 2015). For hospitals that seek to improve the quality of services while influencing patients to recommend the facility, the development of nursing staff should be a priority since the improvement of communication between healthcare providers and patients is connected to patient willingness to recommend the hospital and overall satisfaction.

Findings

Few research studies within the existing literature include a theoretical orientation that guides the study. Through theory, researchers can create a framework which describes different elements within a setting that are suitable to generate new observations from hypotheses

(Southern & Devlin, 2010). Also, as noted by researchers, theory development can either be based on an inductive or deductive approach (Southern and Devlin, 2010). This study adopted a deductive method by using PPT to examine if the global payment model has a significant influence on patient ratings of hospital inpatient services.

The literature on payment models and patient satisfaction related healthcare providers describes many relevant factors that merit further research. Certainly, the study of the communication between providers and patients, care transition, and communication about medicines among others, are useful to identify under which model or environment services improve (Chen, Koren, Munroe, & Yao, 2014; Kennedy et al., 2013; Liu, Zhang, Shi, & Xia, 2017; Newell & Jordan, 2015; Roberts et al., 2018; Self & Coffin, 2017). There is an increasing number of studies analyzing patient satisfaction with HCAHPS instrument under different payment models to determine the quality of care delivered at hospitals (Chen et al., 2014). The Centers for Medicare and Medicaid Services continues to innovate with different value-based payment models, and the agency expects to increase Medicare reimbursements by 50% for value-based options (Song & Blumenthal, 2016).

Extant research has shown that it is necessary to study the influence of CMS payment models on patient satisfaction to measure the quality of care at hospitals (Calikoglu et al., 2012; Bruce & David, 2013; Nussbaum, McClellan, & Metlaly, 2018). Therefore, the importance of assessing the contribution of payment models to the healthcare delivery system, as it relates to improved quality service and cost reduction. For this reason, this study evaluated the influence of the global payment model on patient satisfaction of healthcare services at hospitals.

Moreover, the payment models cited in this study have unique characteristics that are tied to patient satisfaction ratings, and rewards granted to providers for the accomplishment of pre-established goals. According to researchers, CMS payment models changed how healthcare services are reimbursed while supporting the shift from volume to value with the purpose of improving the quality of care at hospitals (Bosko & Hawkins, 2016; Vanlare & Conway, 2012). That is, moving from a fee-for-service model to reimbursements that are aligned with improved care, outcomes, and cost reduction.

On the other hand, the application of the global payment model in international settings did not contribute to cost containment. That is, researcher reported that providers increased the cost of healthcare services to receive higher revenues under the global payment model in Taiwan (Chang et al., 2015), while in Korea, the shift from FFS model to a global budget model is on its way to having a better control on escalating costs (Yang-Kyun, 2012). There is an international shift in payment models that transitions from the traditional FFS model to one that controls rising costs and adds value to the health outcomes of patients. However, there seem to be mix results due to existing external factors that are not under providers control. It is expected that research on payment models can help to explain if a model contributes to the improvement of healthcare quality and economic conditions for healthcare systems.

Although there are mixed results from the assessment of payment models and their impact on the delivery of care, many of the findings have shown positive outcomes. To illustrate, first, using a global budget model in China resulted in the reduction of costs for healthcare providers (Huang et al., 2016). Second, when compared to FFS model, the cost of healthcare services under a bundled payment model in China remained unchanged, while FFS cost

increased 17% during the same period (Basch, 2017). The objective of this study is to determine if patient ratings of hospitals in the state of Maryland are influenced by the application of the global budget model.

Many researchers have incorporated HCAHPS survey in their research to analyze patient satisfaction at various levels (Kemp et al., 2015). In fact, researchers indicated that HCAHPS survey is a reliable and valid instrument used to measure patient satisfaction in different healthcare settings (Elliott et al., 2010). Conversely, a qualitative study on patient satisfaction using HCAHPS noted the inconsistency with the reliability of some of the measures which were found to be below 0.90 (Westbrook et al., 2014). The results of the HCAHPS survey are used to identify strengths and weaknesses within providers of care inpatient settings, which are also used to incentivize providers that comply with CMS expectations (Schroeder et al., 2016).

While physicians are usually viewed as the primary providers within the healthcare delivery setting, nurses have had a significant role in patient communication as well. Effective communication between clinical staff and patient at hospitals helps to improve healthcare providers ratings and outcomes (Kemp et al., 2015). Patient ratings and clinical outcomes should be evaluated with the existing payment model to discover if there are associations or if the application of the model adds value to the process. Providers of care should use HCAHPS survey results to improve medical staff communication skills.

Critique of Previous Research Methods

The development of new payment models by CMS is consistent with its objective of improving the quality of healthcare services and as a result, have a better patient experience at a lower cost (Saxton & Finkelstein, 2012). For example, a quantitative methodology was

employed to measure mortality changes in 134,435 patients with chronic disease pre and post implementation of a pay-for-performance model (Sutton et al., 2012). Results of the study showed a significant decrease in patient mortality of 890 fewer deaths. The characteristics of healthcare payment models include measures to assess performance, reward system, and the environment in which care is provided (Chang et al., 2015; Rajkumar et al., 2014; Sutton et al., 2012). Similarly, the reimbursement for healthcare services operates under a structured system that includes performance assessment and quality improvement of inpatient services.

Many findings in the literature reported improvements in HCAHPS ratings of provider services. (Kennedy et al., 2013; Soric et al., 2016; Waniga, Gerke, Shoemaker, Bourgoine, & Eamranond, 2016). For instance, the improvement of patient satisfaction using HCAHPS scores was positively influenced by the implementation of the layered learning model (LLM) that is used to train residents on how to instruct students and others while supervised by a medical pharmacist (Soric et al., 2016). The implementation of the LLM increases hospital resources, which allows residents and students to gain experience while contributing to the reduction of healthcare cost and improved patient satisfaction. Likewise, this study goal is to investigate if Maryland's global payment model could influence patient ratings of hospitals.

Methodological designs and economic problems for pay-for-performance models in quantitative studies differ from one study to another. Particularly, the size of pay-for-performance model samples is usually small with the nonrandomized participation of subjects resulted from selection bias, as well as inconsistencies between the model incentive structure and patient experience (Rosenau et al., 2012). Furthermore, researchers suggested that penalizing providers for low performance could result in the reduction of hospital staff performance

(Rosenau et al., 2012). Greater participation in pay-for-performance programs may be translated into higher savings. The shift from fee-for-service to alternative payment models needs to continue with the goal set on better care, outcomes, and lower cost.

Furthermore, few quantitative research findings related to global budget models have shown positive results with the implementation of the model. Researchers noted that the application of the global budget model in China contributes to reductions with provider length of stay, drug use, and medical cost (Gao, Fei, & Gordon, 2014; Huang et al., 2016). However, it was also recommended to have mechanisms in place to prevent providers from increasing prices to expand their revenue. One of the aims of this descriptive study is to contribute to the literature on the global budget model and its impact on the patient rating of healthcare providers.

There was consistency within the literature about the association between patient satisfaction with individual items and the global items (rate the hospital with *9 or 10* and willingness to recommend the hospital to family and friends) (Bjertnaes, Sjetne, & Iversen, 2012; Hanna et al., 2012; McMullen & Netland, 2013; Tang, 2011). A study used the HCAHPS survey to investigate the association between patient satisfaction of pain control and overall satisfaction, found that satisfied patients were willing to recommend the hospital. In addition, researchers noted that 76.4% of the variance of admission satisfaction was shared with overall satisfaction (Hanna et al., 2012). The connection between HCAHPS composite measures and the global items informs providers of the important role of hospital staff in healthcare delivery.

However, other studies have shown inconsistent results with the application of the global budget model. Studies finding suggested that inconsistency with the global budget model could be based on individual or systems characteristics (Chang et al., 2015; Chen & Fan, 2016). Also,

under the global budget model providers may experience a reduction of healthcare services due to restrictions on the assignment of a fixed budget (Afendulis et al., 2014). Although there are mixed results with the application of the global budget model, this study hypothesized that the global payment model applied to Maryland's hospitals would influence patient satisfaction of care.

Summary

In reviewing the literature on healthcare payment models and HCAHPS survey results, the expectation for this study is that the findings will be consistent with the literature. Although there are positive results of healthcare services under a global budget model (Gao, Fei, & Gordon, 2014; Huang et al., 2016), there are areas that present challenges due to various factors (Chang et al., 2015; Chen & Fan, 2016). Therefore, further exploration of the study topic is suggested to have a better understanding of the influence of global budget models on patient satisfaction of inpatient services.

Certainly, understanding what a patient considers important will help to improve the communication skills of healthcare providers. Patient-centeredness is about serving the patient with respect, as patient's preferences and cultural aspects are addressed from a clinical perspective to improve outcomes and quality (Newell & Jordan, 2015). This quantitative study analyzed patient responses to measure if their interaction with providers of care influenced their HCAHPS responses under a global budget model.

CHAPTER 3. METHODOLOGY

Chapter 3 includes a discussion of this study research design and information about the purpose of the study. Also, this chapter has a detailed explanation of the methods and procedures used in the study and the instrument employed for data collection. Other sections described in Chapter 3 include the research questions and hypotheses, target population and sample, and ethical considerations.

Purpose of the Study

The primary purpose of this quantitative study was to investigate whether the implementation of the CMS global budget model in the state of Maryland had a significant impact on patient satisfaction as measured by HCAHPS survey. The state of Maryland and CMS jointly launched a statewide global budget model with the goal of transforming Maryland's healthcare system (Rajkumar et al., 2014). The collaborative efforts between Maryland and CMS aimed to improve healthcare provider quality of care, reduce cost, and improve the patient experience (Patel et al., 2015). This study assumed that the outcome of the analyses regarding patient satisfaction would confirm that patient satisfaction of hospital inpatient services improved across the three years implementation cycle of the program.

The primary provider theory (PPT) was adopted to guide this quantitative study. According to the precepts of the theory, patient satisfaction comes from existing fundamental and interrelated elements, which include the primary provider, the provider associates, and service waiting time (Aragon et al., 2013). This study investigated patient satisfaction of provider care under the global budget model to analyze any impact of the global budget model on patient satisfaction of quality of care.

Research Questions and Hypotheses

Primary Research Question:

R_1: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction, as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{01}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A1}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

Research Sub-questions:

R_2: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with nurse communication as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{02}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A2}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_3: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with doctor communication as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{03}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A3}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_4: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with staff responsiveness as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{04}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A4}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_5: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with pain management as measured by the Hospital Consumer Assessment of Healthcare Providers

and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{05}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A5}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_6: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with communication about medicines as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{06}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A6}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_7: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with care transition as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{07}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

- **H_{A7}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_8: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does discharge information as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{08}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A8}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_9: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does the overall hospital rating as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{09}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A9}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

R_{10}: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient

willingness to recommend the hospital as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{010}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A10}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

Research Design

One of the goals in quantitative research is to understand the description of the world as it relates to the observation of material phenomena with an emphasis on the quantitative dimension of the occurrences (Draper, 2004). The application of a quantitative methodology requires researchers to identify the study data for the application of statistical calculations (McCusker & Gunaydin, 2015). A quantitative methodology was appropriate for this study since the study aimed to compare patient satisfaction of hospital services across the three years implementation cycle of Maryland Global Payment Model.

A non-experimental correlational design study using secondary data were employed to analyze the study dependent and independent variables for three years (2013 to 2015). Patient satisfaction as defined by the different categories of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) was identified as the dependent variable (communication with nurses, communication with doctors, responsiveness of hospital staff, pain management, communication about medicines, discharge information, and care transition, overall hospital rating and recommend the hospital). Time in the implementation cycle was

identified as the independent variable (2013, 2014, and 2015). The goal of this design was to determine if a statistically significant difference existed between selected scores on the HCAHPS and the time in the implementation cycle (2013, 2014 and 2015). A one-way ANOVA was used to investigate if there were statistically significant mean differences between the study dependent variables for year 2013 to 2015.

The secondary data set used for this study was HCHAPS-Hospital. Responses from the original study were collected through HCAHPS surveys. Hospitals administered the surveys and sent a copy to a random sample of adults who were admitted to inpatient services (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Surveys were sent out to patients between 2 days and up to 6 weeks after discharge. The methods of administration of the surveys were mail sent to patients, patient contact number (telephone), both mailing and telephone for follow-up, or the employment of active interactive voice recognition communication. Authorized hospitals are required to submit at least 300 surveys each calendar year to the Impatient Perspective Payment System (IPPS) which was created to reimburse hospitals for their reports (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Although HCAHPS survey was introduced since 2006, this study looked at three years to analyze patient satisfaction of hospital services at three specific points in the implementation process.

Target Population and Sample

Population

The Centers for Medicare and Medicaid Services (CMS) is the source of the data set used for this quantitative study. Hospitals are required to submit periodical reports of patient satisfaction scores to comply with HCAHPS goals, which are necessary to inform the public,

incentivize, and to hold providers accountable for care provided to patients (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Data located on CMS website are of public domain and are available for research purposes on CMS Hospital Compare Website (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). This study included patient scores of hospitals located in the State of Maryland.

The population of interest for this study were patients who received inpatient services at Maryland's hospitals during the implementation cycle of the global payment model (year 2013 to 2015). Only adults with 18 years and over were selected for the distribution of the survey. The selection criteria for the HCAHPS survey excluded patient with psychiatric diagnosis.

Hospitals located in the state of Maryland were selected for this investigation. This study used all reporting hospitals that are compliant with the Impatient Perspective Payment System (IPPS) guidelines in the State of Maryland (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Therefore, hospitals with missing reports during the period of analysis were excluded.

Sample

A random selection of HCAHPS patients was included in the data set acquired from CMS web page. Patient that received inpatient services (medical, surgical, and maternity care) with at least one overnight stay were selected for survey distribution (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Patients included in the HCAHPS survey were at least 18 years of age when service was provided. Also, patients selected for the survey distribution were alive at discharge and were not diagnosed with mental health problems as a primary diagnosis (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). Other exclusion

criteria for the distribution of HCAHPS survey to the selected population were: patient who requested not to be contacted, patients discharged to law enforcement, patients with foreign addresses other than US territories, patients discharged to home or hospice care, patients excluded due to state policies, and patients discharged to nursing homes and skilled nursing services (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017).

A sample frame of 49 hospitals in the State of Maryland was part of the data set obtained from CMS website. From the 49 hospitals, seven were removed due to missing data during the period of analysis. All 42 licensed hospitals in the State of Maryland with data reported to CMS across years 2013 to 2015, were used for this study.

Procedures

Participant Selection

This study used secondary datasets of patient ratings of hospitals inpatient services in the State of Maryland with a population sample of 42 hospitals across years 2013, 2014, and 2015. This study used secondary datasets that are publicly available and contain patient satisfaction of hospital inpatient services (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017) in the State of Maryland. Hospitals with missing reports for years 2013, 2014, and 2015 were not included in this study. The HCAHPS dataset downloaded for this study contains reports of 49 hospitals. Out of which, three were missing reports for the years of this study, two hospitals did not have HCAHPS survey reported during years 2013 and 2014, and two hospitals HCAHPS reports were only available for year 2015. The data location was found at CMS website (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

Data were limited to the State of Maryland and included $N = 42$ hospitals out of a total of N = 49 licensed hospitals with inpatient services. Hospitals with missing information $N = 7$ were excluded from the dataset of which $N = 3$ hospitals were listed without reports for the period of this analysis, $N = 2$ hospitals did not report HCAHPS survey results during year 2013 and 2014, and $N = 2$ hospitals reported HCAHPS results for year 2015 only.

Protection of Participants

The involvement of research participants in research studies is regulated. The protection of human subjects is universally known as a requirement for research that includes the participation of individuals (Inoue & Muto, 2016). This study did not include the individual data of participants, but instead used aggregated data of the percent of people who rated the highest rating for each variable at hospitals in Maryland.

Data Collection

Standardized protocols were developed and adopted by CMS since 2006 to administer the HCAHPS surveys for the collection of patient satisfaction from services provided at hospitals. The quarterly collection of patient experiences through HCAHPS survey allows for data comparison across years (Giordano et al., 2010). Patient satisfaction scores were transformed into aggregated percent of each possible answer used to reimburse hospitals for the improvement of healthcare service quality (Hcahpsonline, Centers for Medicare and Medicaid Services, 2015). This study used HCAHPS datasets to analyze if the implementation of the global budget model in the State of Maryland impacted patient satisfaction of inpatient services.

The hospitals collected HCAHPS surveys by telephone, mailing, or a combination of both. Responses to HCAHPS questions are the average of patients who selected each possible

answer on the Likert-type scale (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). "For example, to the question how often did nurses listen to your concerns?" 75% of patients answered nurse always listened, 4% answered nurses sometimes listened, 3% answered nurses never listened, and 18% answered nurses usually listened. This type of data sets up each hospital to become the unit of analysis, and the percent of the patients marking the highest satisfaction level can then be examined for changes across time. This study used the responses of the following variables to analyze Maryland hospitals patient satisfaction reports: (a) communication with nurses, (b) communication with doctors, (c) responsiveness of hospital staff, (d) pain management, and (e) communications about medicine the response is *always*; (f) for discharged information the response is *yes*; (g) for care transition the response is *strongly agree*; (h) for overall hospital rating the response is *9 or 10*; and for (i) recommend the hospital the response is *yes*. Individual items were not included in this study.

For data collection, the following steps were implemented. First, secondary data were downloaded from CMS website for review. The data included dependent and independent variables containing ratio and categorical levels of measurement. Second, survey data were organized by state, and only files which contained Maryland hospitals were downloaded and stored on CVS spreadsheets. Third, tables with HCAHPS ratings for years 2013, 2014, and 2015 were stored in different files for data management. Finally, a new dataset was created with three years of data collected through three years implementation cycle of Maryland Global Payment Model.

Data Analysis

The study analyzed secondary data, which included dependent and independent variables with ratio and categorical levels of measurement. The survey data were organized by US states for each period and stored in CVS spreadsheets. For this study, data were modified to fit the software requirements and at the same time to simplify data analysis for Maryland's hospitals patient ratings. Once the study ethical considerations were approved by Capella University IRB office, data analysis begun. Tables for years 2013, 2014, and 2015 were created and stored under different files for data management. New tables were formed for pre and post analysis of the study dependent and independent variables. Predictive statistics using a one-way ANOVA design were applied to dependent and independent variables to answer each research question.

Instruments

Hospital Consumer Assessment of Healthcare Providers and Systems

Secondary data were collected from the Centers for Medicare and Medicaid Services (CMS) website containing HCAHPS surveys results. The HCAHPS surveys are applied to inpatients with at least one overnight stay at licensed hospitals across the US (Hcahpsonline, Centers for Medicare and Medicaid Services, 2017; Centers for Medicare & Medicaid Services, 2014; Elliott et al., 2010). The survey is applied through a questionnaire developed by CMS, and it is administered by third-party vendors within two days and six weeks after patient discharge. Methods of administration of the survey are mail, phone calls, and follow-up calls (Isaac et al., 2010). The HCAHPS survey used non-probability sampling techniques, specifically a convenience sample approach. The secondary data used for this study can be found at CMS website (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016).

The HCAHPS survey has three areas of interest known as composite, individual items, and global items. In the original survey, patients were asked a total of 21 questions that were related to communication with nurses, communication with doctors, staff responsiveness, management of pain, instructions on medicines, discharge information, care transition, hospital environment, overall hospital score, and hospital recommendation (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016). Most of the HCAHPS survey items are reports about particular healthcare experiences at an inpatient service (Anhang-Price et al., 2014).

HCAHPS managers created a public dataset using patient responses that include separate variables for each possible answer. For the variable communication with doctors, the HCAHPS managers created three new variables expressed as the percent of patients who endorsed one of the responses provided for each individual question. For doctor communication on HCAHPS 2015 survey, patients who reported that their doctors *always* communicated well were 76% of the respondents, patients who reported that their doctors *sometimes* or *never* communicated well were 6% of the respondents, and patients who reported that their doctors *usually* communicated well were 18% of the respondents (Hcahpsonline, Centers for Medicare and Medicaid Services, 2016). Inpatient responses consist of the percentages of patients who endorsed the highest ratings on the HCAHPS questions**.** This data structure collapses the data from the patient level response to a hospital level aggregate and allows the examination of the highest level of satisfaction in these areas using the hospital as the unit of analysis.

Furthermore, 21 questions were included in the original Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. The HCAHPS instrument questions are divided into composite measures (17 questions), individual items (2 questions), and global

measures (2 questions; Hcahpsonline, Centers for Medicare and Medicaid Services, 2017). For the study, only composite measures and global items were analyzed to study the impact of Maryland's global budget model on patient satisfaction. The HCAHPS individual items, cleanliness of hospital environment and quietness of hospital environment were not included in this study. The individual items such as hospital cleanliness and quietness were not considered to be influenced by the implementation of the global budget model. From the remaining 19 questions, two were classified as global, and 17 were used by HCAHPS to create nine composite variables. This study used two global variables and nine composite variables to examine patient satisfaction across time using hospitals in Maryland.

Validity. Validity refers to the evaluation of an instrument to confirm if the instrument measures what it was designed to measure or an accurate representation of patient experience at hospitals (Beattie, Murphy, Atherton, & Lauder, 2015; Colliver, Conlee, & Verhulst, 2012). The calculation of a study internal validity is influenced by the number of participants, the characteristics, development, the period of analysis, history, and the instrument used for the study (Chander, 2018). HCAHPS survey is a validated tool with standard questions and suggestions used to evaluate inpatient experience (Kemp et al., 2015). Survey instruments assess what level of care is patient-centered (Anhang-Price et al., 2014).

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is a national, public, and standardized instrument that is used by providers of care to measure patient experience of hospital services (Mann, Siddiqui, Kurbanova, & Qayyum, 2016). Researchers concluded that HCAHPS survey is suitable for construct and structural validity and was rated low for content validity (Beattie et al., 2015). The reason for a low rate on HCAHPS

survey content validity was for limited information on the implementation of patient recommendation in the instrument (Beattie et al., 2015). The present study did not measure the validity of HCAHPS survey.

Reliability. Reliability is defined as the consistency with which the results of a measure occurs when applied to different subjects (Heale & Twycross, 2015). Researchers used a questionnaire to investigate the influence of healthcare quality on patient satisfaction, and the reliability of the questionnaire was calculated with the Cronbach's alpha coefficient (Zarei et al., 2015). The results of the study reliability calculation were 0.934 for perceived quality and 0.942 for overall satisfaction. Based on the results, the instrument was found to be reliable. Besides, researchers observed, that the examination of score reliability enabled investigators to evaluate the reliability of scores for the average patient satisfaction of a particular hospital (Elliot et al., 2010).

Ethical Considerations

Since secondary and publicly reported data were used in this quantitative study from the Centers for Medicare and Medicaid Services (CMS), the research topic is not regarded as greater than minimal risk (U.S. Department of Health and Human Services, 1979). This study did not have access to the personal information of patients, and hospital information is publicly reported by CMS. However, the analyses of this study were not based on a particular hospital but were based on the variances of patient satisfaction of the quality of hospital services in the State of Maryland across years 2013 to 2015. Also, the HCAHPS data were stored on a computer with limited access, and periodical backups (whenever modified) were done on an external drive to

protect the data. Finally, this study was reviewed and approved by Capella University IRB office.

Summary

In summary, this chapter described the methodology, research design, and steps applied to investigate if inpatient service ratings at Maryland hospitals changed after implementation of the global budget model when analyzed across three points in time (2013, 2014, and 2015). The information presented in chapter 3 is an introduction to the detailed analyses that are described in chapter 4. Chapter 4 details the analysis and results used to explore each research question.

CHAPTER 4. RESULTS

The purpose of chapter 4 was to present the results of the one-way ANOVA used for this study. Chapter 4 includes the description of the study sample and hypothesis testing for each research question with an analysis of the results. Data analysis results are supported with tables that include the one-way ANOVA results. Chapter 4 ends with a summary of the data analyses findings.

Background

The purpose of the quantitative study was to examine if patient satisfaction of the quality of care at Maryland hospitals' inpatient services changed during and after the Centers for Medicare and Medicaid Services (CMS) implemented the global payment model. The study analyzed secondary data collected for Maryland hospitals by third-party vendors during three points in time (2013, 2014, and 2015). Data collected with patient satisfaction of the quality of care at inpatient services are sent to CMS for quarterly publications of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey.

Patient satisfaction of quality of care was measured using the HCAHPS survey. As listed in Table 1, the dependent variables were communication with nurses, communication with doctors, responsiveness of hospital staff, pain management, communication about medicines, discharge information, care transition, overall hospital rating, and recommend the hospital. The categorical independent variable was time. The study data analyses were conducted for all nine research questions using a one-way ANOVA.

Description of the Sample

Data were analyzed from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. Analyses were guided by research questions that included an examination of change over time of patient satisfaction with (a) nurses, (b) doctors, (c) hospital staff responsiveness, (d) pain management, (e) communication about medicines, (f) care transition, (g) discharge information, (h) hospital overall rating, and (e) willingness to recommend the hospital.

Only HCAHPS data from Maryland were used, and the sample included 42 hospital ratings out of a total of 49 licensed hospitals with inpatient services. Seven hospitals with missing information were excluded from the dataset of which three hospitals were listed without reports for the period of this analysis. Two hospitals did not report HCAHPS survey results during years 2013 and 2014. Two hospitals only reported HCAHPS results for year 2015. The percent of people who marked the most positive response (the top-box response) was used to analyze change over time for each research question.

The study top-box response for (a) patient communication with nurses, (b) patient communication with doctors, (c) received help when needed, (d) controlled pain, and (e) explanation about medicines was *always*. For staff explanation about medicines, the top-box response was *always*. For respondents with recovery information, the top-box response was *yes*. Also, patient with hospitals rating top-box response was *9 or 10*. Finally, the top-box response for patient recommendations of hospitals was *yes*, definitely recommend the hospital (see Table 1, for top-box responses).

The dependent variables used in the study were ratio level variables. Patient responses were transformed into percentages by CMS for each variable. The most positive (top-box) responses for each question is shown in Table 1. The data type for time was classified as categorical and was represented by the years of the study. Each dependent variable represented one of the study questions (see Table 1).

Table 1
Research Study Variables

Variable	Questions	Answers	Data Type
Communication with nurses	Patients who reported that their nurses always communicated well	% Answered Always	Ratio
Communication with doctors	Patients who reported that their doctors always communicated well	% Answered Always	Ratio
Responsiveness of hospital staff	Patients who reported that they always received help as soon as they wanted	% Answered Always	Ratio
Pain management	Patients who reported that their pain was always well controlled	% Answered Always	Ratio
Communication about medicines	Patients who reported that staff always explained about medicines before giving it to them	% Answered Always	Ratio
Discharge information	Patients who reported that yes, they were given information about what to do during their recovery at home	% Answered Yes	Ratio
Care transition	Patients who strongly agree they understood their care when they left the hospital	% Answered Strongly Agree	Ratio
Overall hospital rating	Patients with a scale from 0 (lowest) to 10 (highest)	% Answered 9 or 10	Ratio
Recommend the hospital	Patients who reported yes, they would definitely recommend the hospital	% Answered Yes	Ratio

Table 1
Continued
Research Study Variables

Variable	Questions	Answers	Data Type
Time	Year	1 2013 2 2014 3 2015	Categorical

Hypothesis Testing

Primary Research Question

R_1: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction, as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland global payment implementation cycle of the (2013, 2014, and 2015)?

- **H_{01}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A1}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

Research Sub-questions:

R_2: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with nurse communication as measured by the Hospital Consumer Assessment of Healthcare

Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{02}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A2}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question number 2 for the research study, patient satisfaction with nurse communication after implementation of Maryland's global payment model was analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study to investigate if there was a statistically significant mean difference with patient satisfaction with nurse communication before (2013), during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 2 and 3).

Table 2
Yearly Hospital Average Patient Report of Nurse Always Communicating Well

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	74.55	4.538	.700	64	82
2014	42	75.60	4.356	.672	65	82
2015	42	75.90	4.813	.743	62	83
Total	126	75.35	4.574	.407	62	83

The number of patients giving the highest ratings for nurses always communicating well increased over time, 2013 ($M = 74.55$), 2014 ($M = 75.60$), and 2015 ($M = 75.90$) (see table 2). Although not statistically significant $F(2, 123) = 1.016$, $p = .365$ these data show a positive trend for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 3
ANOVA Yearly Hospital Average Patient Report on Nurse Always Communicating Well

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	42.492	2	21.246	1.016	.365
Within Groups	2572.143	123	20.912		
Total	2614.635	125			

Research Sub-question

R_3: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with doctor communication as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{03}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

- **H_{A3}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 3 for the research study patient satisfaction with doctor communication after implementation of Maryland's global payment model was analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference in patient satisfaction with doctor communication before (2013), during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 4 and 5).

Table 4
Yearly Hospital Average Patient Report of Doctor Always Communicating Well

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	77.45	3.046	.470	68	83
2014	42	78.12	3.014	.465	71	84
2015	42	78.31	3.072	.474	73	86
Total	126	77.96	3.042	.271	68	86

The number of patients giving the highest ratings for doctors always communicating well increased over time, 2013 ($M = 77.45$), 2014 ($M = 78.12$), and 2015 ($M = 78.31$) (see Table 4). Although not statistically significant $F(2, 123) = .918$, $p = .402$, these data show a positive trend

for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 5
ANOVA Yearly Hospital Average Patient Report of Doctors Always Communicating Well

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	17.016	2	8.508	.918	.402
Within Groups	1139.786	123	9.267		
Total	1156.802	125			

Research Sub-question

R_4: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with staff responsiveness as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{04}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A4}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 4 for the research study, patient satisfaction with staff responsiveness after implementation of Maryland's global payment model were analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference with patient satisfaction with staff responsiveness before (2013), during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 6 and 7).

Table 6
Yearly Hospital Average Patient Report of Patients Always Received Help as Soon as They Wanted

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	58.07	6.642	1.025	42	70
2014	42	58.93	5.394	.832	46	69
2015	42	59.12	6.078	.938	41	69
Total	126	58.71	6.028	.537	41	70

The number of patients giving the highest ratings for always receiving help as soon as they wanted increased over time, 2013 ($M = 58.07$), 2014 ($M = 58.93$), and 2015 ($M = 59.12$) (see Table 4). Although not statistically significant $F(2, 123) = .356$, $p = .701$, these data show a positive trend for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 7
ANOVA Yearly Hospital Average Patient Report of Patient Always Received Help as Soon as They Wanted

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	26.159	2	13.079	.356	.701
Within Groups	4515.976	123	36.715		
Total	4542.135	125			

Research Sub-question

R_5: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with pain management as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{05}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A5}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 5 for the research study, patient satisfaction with pain management after implementation of Maryland's global payment model were analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference with patient satisfaction with

pain management before (2013), during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 8 and 9).

Table 8
Yearly Hospital Average Patient Report of Pain was Always Well Controlled

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	66.45	4.032	.622	59	73
2014	42	67.38	3.715	.573	56	73
2015	42	67.40	3.768	.581	56	76
Total	126	67.08	3.836	.342	56	76

The number of patients giving the highest ratings for pain was always controlled increased over time, 2013 ($M = 66.45$), 2014 ($M = 67.38$), and 2015 ($M = 67.40$) (see Table 8). Although not statistically significant $F(2, 123) = .840$, $p = .434$, these data show a positive trend for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 9
ANOVA Yearly Hospital Average Patient Report of Pain was Always Well Controlled

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	24.778	2	12.389	.840	.434
Within Groups	1814.429	123	14.751		
Total	1839.206	125			

Research Sub-question

R_6: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with communication about medicines as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{06}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A6}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 6 for the research study, patient satisfaction communication about medicines after implementation of Maryland's global payment model were analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference with patient satisfaction with communication about medicines (2013) during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 10 and 11).

Table 10
Yearly Hospital Average Patient Report of Staff Always Explained About Medicines Before Given it to Them

Year	*N*	*Mean*	*SD*	*SE*	Minimum	Maximum
2013	42	57.93	4.469	.690	48	65
2014	42	59.98	4.297	.663	53	67

Table 10
Continued
Yearly Hospital Average Patient Report of Staff Always Explained About Medicines Before Given it to Them

2015	42	60.43	4.880	.753	49	72
Total	126	59.44	4.649	.414	48	72

The number of patients giving the highest ratings of staff always communicating about medicines before giving it to them increased over time, 2013 (M = 57.93), 2014 (M = 59.98), and 2015 (M = 60.43) (see Table 9). The results of the ANOVA analysis were statistically significant $F(2, 123) = 3.592$, $p = .030$, these data also show a positive trend for increasing patient satisfaction of care over time. Therefore, the null hypothesis is not supported by these data.

Table 11
ANOVA Yearly Hospital Average Patient Report of Staff Always Explained About Medicines Before Given it to Them

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	149.063	2	74.532	3.592	.030
Within Groups	2552.048	123	20.748		
Total	2701.111	125			

Research Sub-question

R_7: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient satisfaction with care transition as measured by the Hospital Consumer Assessment of Healthcare Providers and

Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{07}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A7}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 7 for the research study, patient satisfaction with care transition after implementation of Maryland's global payment model were analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference with patient satisfaction with care transition before (2013), during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 12 and 13).

Table 12
Yearly Hospital Average Patient Report of Yes, They Were Given Information About What to do During Their Recovery at Home

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	84.64	3.766	.581	75	91
2014	42	86.07	3.181	.491	79	92
2015	42	85.81	3.300	.509	77	92
Total	126	85.51	3.454	.308	75	92

The number of patients giving the highest ratings of yes, they were giving information about what to do during their recovery at home did not increase over time, 2013 (M = 84.64), 2014 (M = 86.07), and 2015 (M = 85.81) (see Table 11). The results of the data analyzed for R_7 were not statistically significant $F(2, 123) = .2.071$, $p = .130$, and did not have a positive trend for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 13
ANOVA Yearly Hospital Average Patient Report of Yes, They Were Given Information About What to do During Their Recovery at Home

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	48.587	2	24.294	2.071	.130
Within Groups	1442.905	123	11.731		
Total	1491.492	125			

Research Sub-question

R_8: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does discharge information as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{08}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

- **H_{A8}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 8 for the research study, patient satisfaction with discharge information after implementation of Maryland's global payment model were analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference with patient satisfaction with discharge information before (2013), during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 14 and 15).

Table 14
Yearly Hospital Average Patient Report of Patients Who Strongly Agree They Understood Their Care When They Left the Hospital

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	46.00	5.041	.778	36	58
2014	42	47.95	5.236	.808	36	57
2015	42	48.10	5.776	.891	33	59
Total	126	47.35	5.403	.481	33	59

The number of patients giving the highest ratings of communicating that they *strongly agree* they understood their care when they left the hospital increased over time, 2013 (M = 46.00), 2014 (M = 47.95), and 2015 (M = 48.10) (see Table 13). Although not statistically

significant $F(2, 123) = .2.003$, $p = .139$, these data show a positive trend for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 15
ANOVA Yearly Hospital Average Patient Report of Patients Who Strongly Agree They Understood Their Care When They Left the Hospital

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	115.111	2	57.556	2.003	.139
Within Groups	3533.524	123	28.728		
Total	3648.635	125			

Research Sub-question

R_9: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does the overall hospital rating as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{09}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A9}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 9 for the research study, patient satisfaction with overall hospital rating after implementation of Maryland's global payment model were analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference with patient satisfaction with overall hospital rating before (2013), during (2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 16 and 17).

Table 16
Yearly Hospital Average Patient Report of Patients Who Gave Their Hospital a Rating of 9 or 10 on a Scale From 0 to 10

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	64.43	8.196	1.265	42	82
2014	42	64.90	7.489	1.156	47	82
2015	42	65.55	7.759	1.197	44	82
Total	126	64.96	7.771	.692	42	82

The number of patients giving the highest ratings on a scale from 0 to 10 increased over time, 2013 ($M = 64.43$), 2014 ($M = 64.90$), and 2015 ($M = 65.55$) (see Table 15). Although not statistically significant $F(2,123) = .217$, $p = .806$), these data show a positive trend for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 17
ANOVA Yearly Hospital Average Patient Report of Patients Who Gave Their Hospital a Rating of 9 or 10 on a Scale From 0 to 10

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	26.492	2	13.246	.217	.806
Within Groups	7522.310	123	61.157		
Total	7548.802	125			

Research Sub-question

R_{10}: Are there significant differences in patient satisfaction scores between different years in the implementation cycle of a new payment model? Specifically, does patient willingness to recommend the hospital as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems significantly differ by year in the Maryland Global Payment implementation cycle (2013, 2014, and 2015)?

- **H_{010}:** There is no significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.
- **H_{A10}:** There is a significant difference in patient satisfaction scores between different years in the implementation cycle of a new payment model.

To answer question 10 for the research study, patient satisfaction with their willingness to recommend the hospital after implementation of Maryland's global payment model were analyzed using a one-way analysis of variance (ANOVA). An ANOVA was conducted for the study and was used to investigate if there was a statistically significant mean difference with patient satisfaction with their willingness to recommend the hospital before (2013), during

(2014), and after the implementation (2015) of the global payment model in the State of Maryland (see Tables 18 and 19).

Table 18
Yearly Hospital Average Patient Report of Patients Who Reported Yes, They Would Definitely Recommend the Hospital

Year	*N*	*M*	*SD*	*SE*	Minimum	Maximum
2013	42	65.93	9.035	1.394	42	85
2014	42	66.48	8.437	1.302	44	83
2015	42	66.00	9.213	1.422	44	84
Total	126	58.71	8.833	.787	42	85

The number of patients giving the highest ratings for hospital recommendation did not increase over time, 2013 ($M = 65.93$), 2014 ($M = 66.48$), and 2015 ($M = 66.00$) (see Table 17). Although not statistically significant $F(2, 123) = .047$, $p = .954$, these data do not have a positive trend for increasing patient satisfaction of care over time. The alternative hypothesis is not supported by these data.

Table 19

ANOVA Yearly Hospital Average Patient Report of Patients Who Reported Yes, They Would Definitely Recommend the Hospital

	SS	*DF*	*MS*	*F*	*Sig.*
Between Groups	7.444	2	3.722	.047	.954
Within Groups	9745.262	123	79.230		
Total	9752.706	125			

Conclusions

A one-way ANOVA was conducted for each of the study research sub-question that included seven composite measures and two global items as dependent variables. The results of the one-way ANOVA on the hypotheses tested for nine dependent variables are summarized in Table 20. For this study, the alternative hypothesis was supported for patient satisfaction with communication about medicines ($F(2, 123) = 3.592$, $p = .030$), where patients responded that staff always explained about medicines before giving it to them. Of the remaining results, the alternative hypotheses for the other eight dependent variables were not supported ($p > .05$).

The statistical results for the one-way ANOVA analyses resulted into seven dependent variables (patient satisfaction with nurse communication, doctor communication, staff responsiveness, pain management, communication about medicines, care transition, discharge information, overall hospital rating, and willingness to recommend the hospital) with consistent positive trends during (2014) and after (2015) the implementation of Maryland Global Payment Model. Also, two variables trended in lower satisfaction (care transition and recommend the hospital) after the implementation of Maryland Global Payment Model.

Table 20
Hypotheses and Results

Alternative Hypothesis	Result
H_{A2}: Patient satisfaction with nurse communication improves after implementation of Maryland's global payment model.	Not supported
H_{A3}: Patient satisfaction with doctor communication improves after implementation of Maryland's global payment model.	Not supported
H_{A4}: Patient satisfaction with staff responsiveness changes after implementation of Maryland's global payment model.	Not Supported
H_{A5}: Patient satisfaction with pain management improves after implementation of Maryland's global payment model.	Not Supported
H_{A6}: Patient satisfaction with communication about medicines improves after implementation of Maryland's global payment model.	Supported
H_{A7}: Patient satisfaction with care transition improves after implementation of Maryland's global payment model.	Not supported
H_{A8}: Patient satisfaction with discharge information improves after implementation of Maryland's global payment model.	Not supported
H_{A9}: Patient satisfaction of the overall hospital rating improves after implementation of Maryland's global payment model.	Not supported
H_{A10}: Patient willingness to recommend the hospital changes after implementation of Maryland's global payment model.	Not supported

Summary

The purpose of the quantitative study was to investigate if Maryland Global Payment Model had an impact on patient satisfaction of care provided at hospitals during years 2013, 2014, and 2015. The study used patient ratings from HCAHPS survey to measure if there were statistically significant differences over time of patient satisfaction before, during, and after

implementation of the global payment model in Maryland. Based on the results of the ANOVA analysis, it was found that most of these study variables had a positive trend of increasing patient satisfaction over time, while the variable patient communication about medicines was found to be statistically significant $p = .030$ (see Table 20). A detailed discussion of the study results is found in Chapter 5. Chapter 5 includes the discussions of the results and conclusions based on the results of the study. Also, the chapter discusses the study limitations along with recommendations for similar research studies. Finally, Chapter 5 also consists of a discussion of future practice for related studies.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

Chapter 5 includes the discussion of the one-way analysis of variance (ANOVA) test results of the impact of Maryland Global Payment Model on patient satisfaction of hospital services from years 2013 through 2015 as provided in Chapter 4. Also, described in Chapter 5 are the implications for practice and recommendations for future study results for investigations associated with global payment models and HCAHPS surveys. Other sections covered in Chapter 5 are the summary of the results, the discussion of the results, conclusions based on the results, the study limitations, and a conclusion that summarises the results of the research questions.

Summary of the Results

The Department of Health and Human Services (HHS) have passed national reforms to improve the healthcare industry services and to overcome high healthcare costs in America. The strategies adopted by HHS to improve the value of healthcare services are (a) the provision of incentives to improve the delivery of healthcare services, (b) the implementation of different payment models that support value creation, (c) to motivate healthcare providers to move toward integration and coordination of care, and (d) to make information available for providers and patients to make better decisions (Burwell, 2015). In response to the HHS value-based approach, the Centers for Medicare and Medicaid Services (CMS) and the State of Maryland signed a joint agreement to improve the quality of healthcare services, patient experience, and to lower the cost of services by implementing a global payment model (Centers for Medicare and Medicaid Services, 2014). Researchers exploring this topic concluded that more examination is needed to

measure the impact of a global payment model on care delivery due to inconsistent results (Roberts et al., 2018).

This study was designed to investigate the impact of the State of Maryland Global Payment Model on patient satisfaction of hospital services during years 2013, 2014, and 2015. The goal of the global payment model is to reduce healthcare expenses and improve quality service (National Conference of State Legislatures, 2010). The data collected with the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey assesses patient experience in different environments (Saxton & Finkelstein, 2012). However, researchers have noted that there is not a clear understanding of the association between healthcare quality and patient satisfaction of care (Stein et al., 2014). Based on the findings from this study, patient satisfaction of care with communication about medicines was the only measure with a statistically significant positive change from year 2013 through year 2015.

The HCAHPS survey has been integrated into quality metrics at hospitals to measure patient satisfaction of care (Kahn et al., 2015). For instance, researchers analyzed physician communication coaching effects on patient experience from 5020 HCAHPS respondents and discovered there were no significant differences when compared between patients from surgical control units and those from hospitalist intervention services. However, the same study analyzed 1990 patient responses from an adjusted non-HCAHPS physician-specific patient experience survey (NHPPES) and found statistically significant improvements in ratings of doctor communication (keeping patient informed, overall teamwork, and using words the patient could understand; Seiler et al., 2017). Having a good understanding of the metrics used to assess patient experience of hospital services are helpful for the improvement of patient satisfaction

scores (Kahn et al., 2015). The results from the series of the one-way ANOVA for this study add to the body of knowledge since communication about medicine was the only significant improvement found after implementation of the Maryland Global Payment Model.

The implementation of a global payment model has reduced outpatient per capita medical expenditures in China when compared with the fee-for-service (FFS) payment model (Huang et al., 2016). Researchers used 2013 data from the National Health Services Utilization Survey collected from patients of Urban Basic Medical Insurance in China and found significant reduction in total medical expense, medical insurance fund expense, and out of pocket expense when comparing the global payment model to the FFS model (Huang et al., 2016). Although the application of a global payment model has helped China to efficiently manage their medical expenses, it would be interesting to see if the quality of care improves during the same period of the study. While a global payment model focuses on the delivery of quality care at a lower cost, FFS payment model adopts a fragmented approach to healthcare service (National Conference of State Legislatures, 2010). The results of this study are significant for healthcare managers and policymakers, who are interested in making care accessible with services that correspond to patient expectations at national and international locations.

The research approach adopted for this study is deductive. The study used a quantitative methodology with a non-experimental design utilizing a one-way analysis of variance (ANOVA) to test the primary provider theory (PPT), which assumes that provider behaviors and external factors influence patient satisfaction of the delivery of healthcare services (Aragon e al., 2010). The purpose of comparing patient satisfaction ratings over time from HCAHPS survey is to observe if the implementation of CMS' global payment model in the State of Maryland has a

significant impact on patients' perceptions of the quality of healthcare services. Although the average ratings across the implementation years for care transition and hospital recommendation trended in a negative direction, these results were not statistically significant. The average ratings for (a) communication with nurses, (b) communication with doctors, (c) responsiveness of hospital staff, (d) pain management, (e) discharge information, and (f) overall hospital rating trended in a positive direction but were also not statistically significant. The only statistically significant finding was communication about medicines which was also in a positive direction.

Discussion of the Results

According to the findings for this study, although there were consistent positive trends with patient satisfaction of care between years 2013 (before implementation), 2014 (during implementation), and 2015 (after implementation), communication about medicines was the only statistically significant finding. Results of the descriptive statistics showed that seven out of nine measures trended higher inpatient satisfaction during and after implementation of Maryland Global Payment Model (communication with nurses, communication with doctors, responsiveness of hospital staff, pain management, communication about medicine, discharge information, and overall hospital rating). Two variables trended lower in ratings of satisfaction post implementation of Maryland Global Payment Model (care transition and recommend the hospital), and one was statistically significant (communication about medicines).

Although not statistically significant, the one-way ANOVA results for the percent of ratings for nurse communication are consistent with the primary provider theory (PPT), which indicates that improved care influences patient expectations (Aragon et al., 2013). It is assumed that due to state regulations on healthcare expenditures under a global payment model, patients

perceived that nurse communication was not empathetic as expected. Another reason is that nurse communication with patients may have not adequately addressed the diverse needs of patients.

The percent of ratings for doctor communication showed positive trends during and post global payment model. Based on the principles of PPT, healthcare providers are accountable for the quality of the service provided to patients (Aragon et al., 2010). Physicians are always seen as the primary healthcare provider at hospitals. The implementation of Maryland Global Payment Model may have affected doctors' performance during and after implementation due to adjustments to the new system. Another probable reason why the improvement of doctor communication is not significant could be because patients were referred to external preventive services to reduce the possibility of costly readmissions.

The percent of ratings for patients receiving help as soon as they wanted and patients reporting that their pain was always controlled showed positive trends during and post global payment model. Disapproval with the management of pain and pain at a hospital are common issues (Reich et al., 2013). In order to improve pain management at hospitals, it is necessary to improve the culture of pain management (Hanna et al., 2012). It could be assumed that staff did not respond to patient requests as soon as they expected and therefore impacted the percent of high ratings of staff responsiveness for pain management. Another assumption is that long staff waits were an indication that there was not enough staff available at the time to respond to patient requests as expected. The impact on staff responsiveness to pain management may have been negatively impacted by the implementation of Maryland's global payment model.

The percent of ratings for discharge information showed positive trends during and post global payment model. Patients in intensive care units may experience positive feelings after successful treatments yet cerebral, bodily, social, and functional implications can still occur after discharge (Hashem et al., 2016). The effect of discharge information on patients in the delivery of healthcare services is under constant investigation (Waniga et al., 2016). Patient satisfaction with their healthcare facility could be related to patient outcomes after discharge. It is assumed that patients were referred to other facilities other than Maryland's hospitals to receive preventive care services at a lower cost. According to the principles of PPT, providers of care skills are essential, yet may not satisfy the patient's expectations (Aragon et al., 2010).

A positive trend was observed for the percent of ratings for overall hospital rating during and post global payment model. In order to improve overall patient satisfaction in the clinical setting, hospitals could develop their employees' communication skills and increase their involvement with the patients (Aragon & Gesell, 2003). Overall patient satisfaction with the hospital increased when satisfaction with the doctor improves (Guarisco & Bavin, 2008). Previous research found that overall patient rating of hospitals is positively impacted by elements associated with healthcare costs, service delivery, and the social characteristic of healthcare (Zarei et al., 2015). It is assumed that providers of care were not able to identify areas of healthcare delivery that had a negative impact on patient care and therefore impacted the percent of ratings for overall hospital rating. It is likely that due to the impact of Maryland Global Payment Model, hospitals did not consider increasing medical staff participation with their patients.

The percent of ratings for care transition and hospital recommendation did not change over time. Patient's average rating for care transition changed from 86.07 during year 2014 to 85.81 in year 2015. According to the principles of PPT, despite the quality of care provided, if providers are not proactively engaged with patients, such behavior could negatively impact patient satisfaction with the services provided (Aragon & Gesell, 2003). The assumption is that most providers were not prepared to deliver services under a global payment model. It could also be that hospitals developed policies to improve the transition of patient care based on the allocation of financial resources, which could result in significant operational changes that may have impacted patient willingness to recommend the hospital. Also, it is possible that patients did not fully understand the information provided when they left the hospital due to limited time assigned to communicate with providers of care.

The percent of ratings for communication about medicines significantly improved over time. This significant result may be due to hospital effectiveness in improving patient satisfaction of communication about medicines by adopting preventive measures and by emphasizing patient education about medicine before discharge. This finding for communication about medicines aligns with the philosophy of PPT, which states that hospitals provide the best service for patients and each patient judges the service based on personal expectations (Aragon, 2003; Guarisco & Bavin, 2008). The results of the one-way ANOVA test on communication about medicines implied that providers of care might have delivered higher quality service in this area to patients during the period of the study.

Healthcare and public leaders may use the results of the study to understand the impact of payment models on patient satisfaction of the delivery of healthcare services at hospitals.

Moreover, the results of the study might assist decision-makers from the private and public sectors to discover and apply innovative strategies necessary to improve the national healthcare system in areas such as patient experience, lower cost, and higher quality. In addition, the importance of knowing what matters to patients is relevant to improving the national healthcare system.

Conclusions Based on the Results

Comparison of the Findings with the Theoretical Framework and Previous Literature

Since the inception of HCAHPS surveys public reporting, hospitals have engaged in meaningful practices to satisfy patient expectations as required by public policies (Lang et al., 2013). According to the results of a previous study, HCAHPS public scores for hospitals have increased by 2.8% between years 2008 and 2011 (Elliot et al., 2015). The HCAHPS scores on hospital service continue to improve each year since its inception, and researchers indicated that major increases are among the for-profit hospitals and providers with over 200 beds (Elliot et al., 2015). The study analyzed HCAHPS data for 42 participating hospitals with the objective of determining if patient satisfaction scores are impacted by Maryland Global Payment Model between years 2013 and 2015.

Payment models are considered to be a suitable tool to improve healthcare services. According to research findings, the employment of pay for performance models improves physician behaviors which resulted in improved care as perceived by patients (Guarisco & Bavin, 2008). Also, PPT supported the concept that motivated physicians have a positive impact on patient satisfaction of care (Aragon, 2003). Patient-centeredness is a vital component of healthcare quality (Anhang Price et al., (2014), it is also important to know that a good doctor-

patient communication has a positive impact on patient response to instructions and care outcome (Matusitz & Spear, 2014).

The statistical analysis from the study resulted into an increase in patient satisfaction with doctor and nurse communication during and after the implementation of Maryland Global Payment Model. However, the results of the study were not statistically significant different as the results from other studies (Hu et al., 2016, Kahn et al., 2015, Smith, 2014). Doctor-patient communication was analyzed using experimental (current service model) and control groups (picture-based communication), which resulted into statistically significant difference scores for the experimental group (Hu et al., 2016), while another study classified hospitals into 3 groups as Magnet, Magnet-in-progress and non-Magnet to assess if patient satisfaction of care is impacted by hospital type (Smith, 2014). The study resulted into statistically significant difference for Magnet and Magnet-in-progress (Smith, 2014). The results with patient satisfaction of doctor and nurse communication vary based on the factors involved in each study.

The assessment of hospital staff response to patient requests for help or pain control did not result into a statistically significant difference for the study. A study investigated the effect of pain control on patient satisfaction and discovered that patient pain management was significantly correlated with patient satisfaction of the quality of care delivered by hospital staff (Hanna et al., 2012). Another study found that there was no statistically significant difference in patient satisfaction between type of hospital and patients received help as soon as they wanted (p = .009) (Smith, 2014). These results are useful for healthcare leaders, human services professionals, and policymakers who are interested in improving the health of individuals by providing exceptional services.

The study also analyzed the impact of hospital services on patient satisfaction of medication communication over time and discovered that this was the only element that resulted into a statistically significant difference of $p = .030$. The study findings on communication about medicines were similar to the results of previous studies that investigated hospital factors associated to new medication communication, which resulted into a statistically significant difference of nurse and doctor communication with new medication communication (Bartlett-Ellis et al., 2016). Also, the study results support previous investigations that used HCAHPS survey to investigate its impact on patient satisfaction of medication communication at hospital discharge, where nurse communication and very good or better mental health highly correlates with patient understanding of their medication instructions (Bartlett-Ellis et al., 2017). The findings on patient medication communication are similar to the study results, where patient satisfaction about medication communication is positively impacted by quality care delivery processes. The findings are in line with PPT, where the execution of improved communication from the primary provider positively impacts patient expectations of the quality of care (Guarisco & Bavin, 2008).

The quality of care at hospitals is not independent of patient understanding and retaining of instruction, care participation, and self-administration activation (DelBoccio et al., 2015). Early work on the association between quality improvement of care transition and rehospitalizations reported that Medicare beneficiaries in communities that are exposed to quality improvement initiatives experienced lower rehospitalization rates than Medicare beneficiaries in communities without quality improvement (Brock et al., 2013). Research on discharge instructions on patient satisfaction found that when hospital staff develops discharge

information for patients, the percent of ratings significantly improved for discharge readiness and satisfaction with instructions (Waniga et al., 2016). On the contrary, no statistically significant differences were found for discharge information and care transition during and after the application of Maryland payment model. The slight but non-significant positive trends resulted from the ANOVA test can be interpreted as early results of the implementation of Maryland Global Payment Model, it is expected that the positive trend toward more positive ratings of healthcare inpatient services will continue until the end of the agreement.

According to the results of the study, the examination of care transition was negatively impacted post implementation of Maryland Global Payment Model. The one-way ANOVA test displayed small differences between years 2013 and 2015 for patient satisfaction of care transition in the State of Maryland. Care transition percent of ratings from 42 hospitals improved from 84% to 86% during years 2013 and 2014 respectively (a difference of 2%), while the post implementation percent of ratings for year 2015 was 85% (a difference of -1% from 2014). A previous study assessed the association between quality improvement in care transition in communities and rehospitalization among Medicare beneficiaries to discover that there was a statistically significant improvement for intervention groups using HCAHPS survey with an increase from 78.44% to 80.46% (Brock et al., 2013). The application of payment models to improve healthcare quality from a patient perspective is not enough. Hospital staff also need to be trained on how to interact with patients in order to have better outcomes.

The HCAHAPS global items measure overall patient hospital inpatient experience in two segments. One is the level of satisfaction rated on a scale from 0 to 10 and the other the opportunity to recommend the service to family and friends (Hcahpsonline, Centers for Medicare

and Medicaid Services, 2015). The percent of ratings for patient satisfaction of overall hospital ratings and willingness to recommend the hospital resulted into statistically significant difference when compared across groups. That is, the results for willingness to recommend the hospital and overall hospital rating was significant for blacks and whites. However, when analyzed as a group under race, only willingness to recommend the hospital was statistically significant different (Yavas et al., 2016). The study one-way ANOVA test for willingness to recommend the hospital did not result into a significant difference, and the percent of ratings obtained from the post implementation of Maryland payment model was less than the previous year.

The statistical result for willingness to recommend the hospital was contrary to the tenets of PPT. According to PPT theory, if healthcare services are patient-centered, patient satisfaction with their provider should impact overall patient satisfaction (Aragon & Gesell, 2003, Guarisco & Bavin, 2008). Although patient satisfaction with their providers improved in seven out of nine measures, the improvements were not significant in all the cases (except for medication communication) to influence patient willingness to recommend the hospital. Another is that the limited number of hospitals may have not provided enough data to impact Maryland hospitals assessment results on patient willingness to recommend the hospital.

Interpretation of the Findings

Other researchers have concluded that patient experience of care is usually associated with the quality of healthcare services received (Stein et al., 2014). In this study, seven measures of the HCAHPS instrument showed positive trends during and post global payment model (only one was statistically significant), which may mean that healthcare providers were able to adjust their services to the requirements of the State of Maryland Global Payment Model for the first

and second year. Most of the variables measured in this study showed positive trends during and post global payment model, these findings support the primary provider theory, which states that primary providers who practice patient-centered care have a positive impact on patient behavior and perception of care (Aragon et al., 2010). Again, if the study had included other states, the sample size may have been large enough to detect significant changes over time.

Care transition is an HCAHPS composite measure that did not improve post implementation of Maryland Global Payment Model. Included in the HCAHPS survey since 2013, care transition has been the lowest scoring measure (Volland & Fryda, 2015). The questions included for care transition enquire if the patient and family preferences were included before departing from the hospital, if the patient had a good understanding of what to do after discharge, and if the patient understood medication indications at discharge (DelBoccio et al., 2015). Healthcare provider responsibility with patients does not end at discharge (Volland & Fryda, 2015), hence coordinated services for patients at discharge should be maintained to ensure that patients are safe and to avoid readmissions for related issues. One of the challenges with care transition could be the absence of a clear placement process when moving patients from one healthcare facility to another facility. This downward trend in ratings of care transition may have resulted from unclear processes when moving from the previous payment model to the global payment model.

Global items in the HCAHPS survey include questions related to hospital rating and recommendation. Although not statistically significant, overall hospital ratings trended positive each year. However, the ratings of hospital recommendation to friends and family trended negative post implementation of Maryland Global Payment Model. Previous research has found

that doctor and nurse interactions with patients have a significant effect on patient willingness to recommend the hospital (Long, 2012; Otani et al., 2010). No significant changes in willingness to recommend the hospital may be due to the short span of time for this study. Changing the healthcare focus from a fee-for-service model to a patient-centered model must require a holistic change in the healthcare culture. This overhaul must take considerable effort and time. Therefore, it is not surprising that the percent of high patient ratings of the hospitals did not change over the period of this study. It could be that the Maryland Global Payment Model was not structured to improve overall hospital ratings, but instead was structured only to reduce the cost of hospital care. For instance, it could be that various providers of care were not prepared to work under a global payment model (Pines et al., 2014), which triggered patients to perceive the service as lower quality and as a result declined to recommend the hospital.

Limitations

This study was limited to 42 hospitals in the State of Maryland and may not reflect patient experiences of inpatient services at other hospitals. Researchers have indicated that a sample of 71 hospitals was not big enough to represent the broader population of hospitals in the United States (McCaughey et al., 2013). Caution is advised in generalizing the results to other regions (Kemp et al., 2015). While the study results add to the body of knowledge about payment models and any impact on patient satisfaction of care, the findings are not without limitations. Future studies should use a larger or national sample of hospitals to replicate the initial study findings.

Another limitation of this quantitative study is the absence of qualitative data about patient perspectives on their care. For instance, the collection of patient perspectives about their

experience may result in a better understanding of what matters to patients (Huppertz & Smith, 2014). Discussion of the patient perspective about the services received could result in issues arising from the implementation of the global payment model that may inadvertently impact patient care.

The study dataset included patient ratings from Maryland's hospitals. The inclusion of patient ratings from other states would contribute to the generalization of the study (Otani et al., 2010). Secondary datasets were used from CMS public site to investigate the impact of Maryland Global Payment Model on patient satisfaction of the quality of care at hospitals. The HCAHPS datasets for this study were also limited to different patients for pre and post implementation in the State of Maryland.

Patients' demographic data were not included in this study. The inclusion of patient-level data would allow for a more comprehensive analysis (Chen et al., 2014). The addition of patient's demographic information could be compared with patient's characteristics for the formation of associations with the HCAHPS scores.

The HCAHPS individual items of cleanliness and quietness are from a different classification that requires the measures to be assessed in that area (Westbrook et al., 2014). For instance, the assessment of cleanliness and quietness does not require someone to be admitted to an inpatient service, and anyone can visit a hospital and evaluate its environment (Westbrook et al., 2014). Only patients admitted to hospitals can assess the communication between them and their providers. The study did not include HCAHPS individual items (cleanliness and quietness) but instead incorporate patient experience of care with healthcare providers.

Implications for Practice

For human service professionals, the findings of the study support PPT principles, which state that when care is patient-centered, it has a positive effect on patient conduct and clinical outcomes (Aragon et al., 2010). Other studies should use interviews to understand and solve patient limitations with their communication with hospital staff. The inclusion of other measures to study the impact of payment model is necessary for the creation of value.

Since patient satisfaction of care at hospitals are important for hospital payments, providers of care should be instructed on how to interact with patients at different labels of service. Additional study is needed to clarify the inferences of the patient-provider relationship to improve the quality of care at hospitals (Isaac et al., 2010). Further study is also needed to understand what patients care about in order for healthcare managers to understand which HCAHPS measures have an impact on service.

Future studies should continue investigating how to improve patient satisfaction of care under value-based models such as global payment models. The change to global payment models with a value-based approach empowers healthcare and public leaders to continue innovating in the state of Maryland for many years (Pines et al., 2014). The results of the study analyses confirm that at an early stage the adoption of a global payment model may have a positive effect on most of HCAHPS measures. Human services and healthcare professionals should conduct additional research on care transition and hospital recommendation to discover what issues patients are having in these areas.

Recommendations for Further Research

Further study is needed to investigate if global payment models influence provider behavior to be more patient-centered which may result in improving patient ratings of the quality of care. Future studies should include a larger sample of hospitals from two or more states so that the results can be generalized to a larger population. Using data from larger samples and broader geographic regions will also increase study generalizability (Otani et al., 2010). Researchers should measure individual hospitals performance to investigate if factors that affect one geographical area may not be present in other areas. It would be helpful for healthcare managers to understand which elements may be most helpful in changing the hospital environment from a culture of fee-for-service to a culture of patient-centered care under the global payment model.

Additional research may use a qualitative or mix method approach to collect data with questionnaires to identify factors that are not included in the HCAHPS survey. Focus groups could be a good strategy for collecting information about how to change from a billing culture to a hospital environment that supports patient-centered care. Similarly, focus groups could be used with high performing hospitals to identify what works well in supporting that culture of patient-centered care.

Future research may look at hospital actions with regards to patient involvement with their care. For instance, hospitals may partner with local community organizations to educate and help the patient to recover and remain healthy after discharge. The latter could reduce healthcare expenses for the patient, decrease readmissions rates for the hospital, and improve patient satisfaction scores on the HCAHPS survey for care transition. It is the patient responsibility to follow-up with directions provided by clinical staff, a recommendation could be to have hospitals

develop and implement strategies to engage patient commitment with the communications provided about the use of medications.

Conclusion

The purpose of this quantitative study was to assess if the implementation of the Maryland Global Payment Model impacted patient satisfaction of care at hospitals. A series of one-way ANOVA tests were used to measure any statistically significant differences in patient satisfaction ratings across time. The study used datasets from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) for years 2013 to 2015, which consisted of seven composite topics and two global items. The results of this study were not statistically significant for nurse communication, doctor communication, responsiveness of hospital staff, pain management, discharge information, care transition, overall hospital rating, and willingness to recommend the hospital. Only patient ratings of hospital staff communication about medicines significantly improved over time.

The study findings may be used to further the understanding of payment models in the U.S. healthcare system and international locations. The current U.S. healthcare system is fragmented and needs coordinated care along with the integration of patient satisfaction under value-based reimbursement models (Henkel & Maryland, 2015). These findings are relevant to healthcare managers, human services professionals, policymakers, and stakeholders because hospitals are required to strategize and implement plans to anticipate challenges that impact patient satisfaction of care and the quality of healthcare services. Changing a culture from fee-for-service to patient-centered care may take time but may provide better models of prevention which should lower costs and may also lead to better patient ratings of quality of care. Findings

of the study add to the body of knowledge related to payment models and any potential impact on patient satisfaction of hospital services.

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