

## **ABSTRACT**

Kimberly D. Crickmore. THE RELATIONSHIP BETWEEN PATIENT SATISFACTION AND PATIENT-AND FAMILY-CENTERED CARE. (Under the direction of Dr. Martha Engelke) College of Nursing, May, 2010.

Evidence of quality care is an important outcome in healthcare. Patient satisfaction, an outcome of care, is considered by many experts to be a measure of quality. Patient- and family-centered care (PFCC) is a healthcare delivery model that aims to enhance partnerships with healthcare providers and patients and families. These partnerships are believed to play a significant role in improving satisfaction and quality. However, there is a scarcity of research that uses standardized tools and methods to show correlations between patient satisfaction and PFCC.

The purpose of this study was to examine the relationship between the patient's perception of patient- and family-centered care (PFCC) as measured by questions defined by the National Task Force on Patient- and Family-Centered Care Metrics for Press Ganey Survey items and the patients' perception of their inpatient care as measured by the HCAHPS Inpatient Core Survey in patient care units in an academic medical center in the southeastern United States.

A descriptive cross-sectional research design was used. The sample (N=1016) was primarily white (57%) females (69%) with a mean age of 52.8 years. Those respondents that were highly satisfied with their care also rated their perception of the presence of PFCC highly. A relationship was also noted with respondent characteristics such as age, gender, and perceived health status. Significant relationships were noted with domains of care in which nurses had the most influence. Findings from this study validated relationships between patient satisfaction and PFCC and provided evidence that nurses play a vital role in this outcome.

THE RELATIONSHIP BETWEEN PATIENT SATISFACTION AND  
PATIENT-AND FAMILY-CENTERED CARE

A Dissertation

Presented to

The Faculty of the College of Nursing

East Carolina University

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Nursing

by

Kimberly D. Crickmore

May, 2010

THE RELATIONSHIP BETWEEN PATIENT SATISFACTION AND  
PATIENT-AND FAMILY-CENTERED CARE

by

Kimberly D. Crickmore

APPROVED BY:

DIRECTOR OF DISSERTATION: \_\_\_\_\_  
Martha Engelke

COMMITTEE MEMBER: \_\_\_\_\_  
Melvin Swanson

COMMITTEE MEMBER: \_\_\_\_\_  
Joan Wynn

COMMITTEE MEMBER: \_\_\_\_\_  
Mary Ann Rose

DEAN OF THE COLLEGE OF NURSING:

\_\_\_\_\_  
Sylvia Brown

ACTING DEAN OF THE GRADUATE SCHOOL:

\_\_\_\_\_  
Paul Gemperline

©Copyright 2010  
Kimberly D. Crickmore

## ACKNOWLEDGEMENTS

To my chair and friend, Dr. Martha Engelke, and my committee Dr. Melvin Swanson, Dr. Joan Wynn, and Dr. Mary Ann Rose: thank you for your interest and your investment of time in my research. Your support was critical to my success.

To Amy Jones, friend and colleague: thanks for your support of me on this journey and for sharing the passion that I have for patient- and family-centered care. Your support will never be forgotten.

To Jim Eggers, from HealthStream, and Amy Collard, my faithful assistant and friend: your assistance with the data and formatting of results made it possible to reach my goal. Thanks for your support.

To my fellow PhD candidates Cheryl Duke, Mary Wilson, Diana Bond, and Daphne Brewington: these last few years have been a challenge in every sense of the word. Thanks for your encouragement and support through all of my trials and joy. Best of luck to each of you in all of your future endeavors. May we always keep in touch.

A special thanks to my parents, Christine and W. A. (posthumously) Crickmore: the love, support, and solid foundation that you provided for me was most significant in the success of this journey. You taught me to have faith in myself and God and to aim to be the best I could be. I hope you are as proud of me as I am of you.

## **DEDICATION**

To my wonderful husband, Brad Osborne, and my precious daughter, Ellie Osborne: you two are my world. I would not be realizing this goal without your love, support, understanding, and sacrifices. I am deeply grateful to you both. This work is dedicated to you.

## TABLE OF CONTENTS

|                                                    |      |
|----------------------------------------------------|------|
| LIST OF FIGURES.....                               | viii |
| LIST OF TABLES.....                                | ix   |
| CHAPTER 1 INTRODUCTION.....                        | 1    |
| Problem Statement/Significance.....                | 1    |
| Purpose.....                                       | 5    |
| Psychometric Research Questions.....               | 5    |
| Primary Research Questions.....                    | 5    |
| Theoretical Approach.....                          | 6    |
| Definitions.....                                   | 7    |
| Patient-and Family-Centered Care (PFCC).....       | 7    |
| Patient Satisfaction (HCAHPS).....                 | 10   |
| Summary.....                                       | 11   |
| CHAPTER 2 REVIEW OF LITERATURE.....                | 12   |
| Description of Search Methods.....                 | 12   |
| Patient- and Family-Centered Care.....             | 13   |
| Summary of Patient- and Family-Centered Care.....  | 16   |
| Patient Satisfaction.....                          | 17   |
| Perceived Health Status.....                       | 19   |
| Age, Gender, Race.....                             | 22   |
| Summary of Patient Satisfaction.....               | 26   |
| HCAHPS (as a Measure of Patient Satisfaction)..... | 27   |
| Summary for HCAHPS.....                            | 31   |

|                                                                  |    |
|------------------------------------------------------------------|----|
| CHAPTER 3 METHODS AND DESIGN.....                                | 32 |
| Research Design.....                                             | 32 |
| Setting and Sample.....                                          | 32 |
| Instrumentation.....                                             | 33 |
| HCAHPS Survey.....                                               | 33 |
| PFCC Press Ganey Questions.....                                  | 34 |
| Procedures.....                                                  | 35 |
| Data Analysis.....                                               | 36 |
| Summary.....                                                     | 37 |
| CHAPTER 4 RESULTS.....                                           | 38 |
| Characteristics of the Sample.....                               | 38 |
| Descriptive Analysis of Responses to Surveys.....                | 38 |
| Psychometric Research Questions.....                             | 44 |
| Primary Research Questions.....                                  | 44 |
| Summary.....                                                     | 60 |
| CHAPTER 5 DISCUSSION.....                                        | 61 |
| Significant Findings and Discussion.....                         | 61 |
| Study Limitations.....                                           | 65 |
| Implications for Practice, Education, and Research Practice..... | 68 |
| Practice.....                                                    | 68 |
| Education.....                                                   | 69 |
| Research.....                                                    | 70 |
| Summary.....                                                     | 71 |



|                                                                         |    |
|-------------------------------------------------------------------------|----|
| REFERENCES.....                                                         | 72 |
| Appendix A: Survey.....                                                 | 79 |
| Appendix B: Patient- and Family- Centered Care Custom Question Set..... | 80 |
| Appendix C: Institutional Review Board Approval Letter.....             | 81 |

## LIST OF FIGURES

1. Adaptation of Kane's outcomes model for measuring the relationship between patient satisfaction as measured by HCAHPS and patient- and family-centered care (PFCC).....

## LIST OF TABLES

|                                                                                                                                                             |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 1. Demographics and Characteristics of the Study Sample (N=1016).....                                                                                       | 39 |
| 2. Frequency and Distribution of HCAHPS Responses.....                                                                                                      | 40 |
| 3. Frequency and Distribution of PFCC Press Ganey Responses.....                                                                                            | 43 |
| 4. Gamma Correlation of the Relationship Between PFCC and Overall Rating and Likelihood to Recommend.....                                                   | 46 |
| 5. Frequency and Distribution of PFCC (total score) and Overall Rating and Likelihood to Recommend.....                                                     | 47 |
| 6. Gamma Correlation of Relationship Between PFCC (total score) and Care from Nurses, Care from Doctors, Hospital Environment and Hospital Experiences..... | 50 |
| 7. Percentage of Respondent Subgroups Reporting Highest Ratings for Overall Hospital Rating, Likelihood to Recommend and PFCC Total Score.....              | 52 |
| 8. Percentage of Respondent Subgroups Reporting Highest Ratings for Overall Hospital Rating, Likelihood to Recommend and PFCC Total Score by Health Status  | 54 |
| 9. Stepwise Logistic Regression for Predictors for Overall Hospital Rating.....                                                                             | 57 |
| 10. Stepwise Logistic Regression for Predictors for Likelihood to Recommend Hospital                                                                        | 59 |
| 11. Comparison of Stepwise Logistic Regression for Overall Hospital Rating and Likelihood to Recommend Rating.....                                          | 66 |

## **CHAPTER ONE INTRODUCTION**

### **Problem Statement/Significance**

Evidence of quality care is an important outcome of any health care system. The Institute of Medicine (IOM) defines quality in healthcare as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (IOM, 1999). The IOM (2001) also states that quality health care should be safe, effective, patient-centered, timely, efficient, and equitable.

Improving the quality of health care has been a national priority for the last three decades. Most studies have examined single diagnoses, payer sources, specific population segments and have considered health outcomes without a link to the processes of care. Therefore, we lack a comprehensive view of the level of quality care given to the average adult in the United States (McGlynn et al., 2003).

Quality measures should be focused on three main areas for improvement: (1) structural items such as the environment in which care is delivered; (2) processes of care such as professional activities associated with the provision of care; and (3) outcomes which includes changes in the patient’s current and future health status as a result of care as well as the patient’s perception of their care (patient satisfaction) (Donabedian, 1988; Kane, Maciejewski, & Finch, 1997; Tomlinson & Ko, 2006). Patient satisfaction, an outcome of care, is generally viewed as an important component in assessing quality of care (Cleary et al., 1991; Jha, Orav, Zheng, & Epstein, 2008; Kane et al., 1997; Yellen, Davis, & Ricard, 2002).

Donabedian (1988), an advocate of nursing care and reputable quality researcher, defines patient satisfaction as the ultimate validation of quality care. This foundational work which has

been expounded upon by agencies such as The Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the American Nurses Association (ANA), and others, has served as support for using patient satisfaction as a measure of quality care (Yellen et al., 2002).

Tomlinson and Ko (2006) along with Wharam and Sulmasy (2009) note that patient satisfaction is a very complex concept that is dependent on many factors and that controversy exists around using this metric as a measure of quality. Tomlinson and Ko also note that whether or not one agrees with patient satisfaction as a valid measure of quality, it is already being used as such. Wharam and Sulmasy suggest that due to the urgency to improve quality, a prudent short term strategy would be to focus on quality assessment from the patients' perspective using the Hospital Consumer Assessment of Healthcare Providers (HCAHPS) survey tool to assist in assessing quality of care.

Numerous studies have examined various populations and factors associated with patient satisfaction with care (perception of care). As previously noted, factors associated with quality care and patient satisfaction are thought to include; structure, process and outcomes of care (Donabedian, 1988; Kane et al., 1997). Other associated factors that have been examined in studies include: patient socioeconomic status, education level, age, gender, race, marital status, perception of health status, physical and psychological status, and attitudes and expectations concerning care (Cleary et al., 1991; Sahin, Yilmaz, & Lee, 2007; Sitzia & Wood, 1997; Thi, Brianco, Empereur, & Guillemin, 2002). Results, however, are inconsistent and sometimes contradictory. This may be due largely to the considerable volume, variation, and lack of validity and reliability of the tools used to measure patient satisfaction as a quality measure (Castle, Brown, Hepner, & Hays, 2005; Sitzia, 1999).

In today's healthcare arena, the increased focus on quality and safety outcomes, satisfaction scores and new reimbursement structures, has motivated hospital leaders to develop innovative models of care delivery (Charmel & Frampton, 2008). Patient- and family-centered care (PFCC) is a model that addresses these challenges and issues.

PFCC is defined as “an innovative approach to the planning, delivery, and evaluation of health care that is grounded in mutually beneficial partnerships among health care patients, families, and providers” (Institute for Family Centered Care, 2008, p. 1). This model places an emphasis on collaborating with patients and families of all ages, at all levels of care (including the ICU), and in all health care settings. It also acknowledges that families, however they are defined, are essential to patients' health, recovery, and well being and are allies for quality and safety within the health care system (Frampton, Gipin, & Charmel, 2003).

Influential stakeholders such as the Institute for Healthcare Improvement (IHI) and the Institute of Medicine (IOM) suggest partnerships with patients, families, and healthcare providers, as noted in the PFCC model, can reduce errors, reduce costs, and improve patient satisfaction thus improving the quality of the care provided. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the American Nurses' Credentialing Center (ANCC, the awarding body for Magnet status for nursing excellence) require that PFCC concepts be integrated into practice as a means to address national patient safety goals and quality of care. Implementation of the key concepts of PFCC is essential in order to meet accreditation standards of these two organizations beginning in 2009 (ANCC, 2008; McCarthy, 2007). Therefore, hospitals aiming to obtain these credentials are beginning to implement elements of the PFCC model of care.

Although PFCC is recommended and/or required by influential healthcare agencies such as IHI, IOM, JCAHO, and ANCC (ANCC, 2008; Klein, 2007; McCarthy, 2007; Meyers, 2008), there is minimal research that demonstrates the effectiveness of the model in achieving financial, patient satisfaction, and quality goals (Hobbs, 2009). Additional research is needed to establish consensus on whether this model has a positive impact on the outcomes of care including patient satisfaction.

Some organizations suggest that the implementation of PFCC does indeed positively impact patient satisfaction (Klein, 2007; McCarthy, 2007; Meyers, 2008). At least one study has noted that the implementation of patient- and family-centered care had a positive effect on the patient and family satisfaction scores in one ICU setting (Dowling, Vender, Guilianelli, & Wang, 2005). Further scientific inquiry is needed to substantiate this finding.

The American Association of Colleges of Nursing (AACN), in a 2006 position statement on nursing research, validated the significance of nursing research pertaining to health systems and outcomes. The focus of this type of nursing research is to identify ways by which the organization and delivery of health care influence quality, cost, and the patient and family experience. Because of the nature of nursing care, the nurse researcher is in a unique position to examine both the clinical services and systematic structures in which these services are rendered. There is an increased demand for nurse researchers to broaden their knowledge and skills in health services research to meet the health and biomedical research agenda for the nation (AACN, 2006). Therefore, a study designed to examine a health care delivery model (PFCC) and its impact on patient satisfaction is significant to nursing research.

## **Purpose**

The purpose of this study was to examine the relationship between the patient's perception of patient- and family-centered care (PFCC) as measured by questions defined by the National Task Force on Patient- and Family-Centered Care Metrics for Press Ganey Survey items and the patients' perception of their inpatient care as measured by the HCAHPS Inpatient Core Survey in patient care units in an academic medical center in the southeastern United States. Prior to the examination of the primary research questions, the psychometric properties of the Press Ganey and HCAHPS survey items were analyzed for the study sample.

## **Psychometric Research Questions**

1. What is the internal reliability and of the HCAHPS survey items?
2. What is the internal reliability and dimensionality of the five-item Press Ganey survey?

## **Primary Research Questions**

1. Is there a relationship between the perception of PFCC (total score on Press Ganey survey items) and the overall hospital rating and the likelihood to recommend rating (HCAHPS survey)?
2. Is there a relationship between the individual components of PFCC (individual item scores) and the overall hospital rating and the likelihood to recommend rating (HCAHPS survey)?
3. Is there a relationship between the perception of PFCC (total score on Press Ganey survey items) and the perception of care from nurses, care from doctors, hospital environment, and experiences in the hospital (HCAHPS component scores)?
4. Does the perception of PFCC (total score on the Press Ganey survey) and



- the overall rating of the hospital experience and the likelihood to recommend the hospital (HCAHPS) vary based on respondent characteristics?
5. What variables are the best predictors that a patient is likely to give a high overall rating for their hospital experience?
  6. What variables are the best predictors that a patient is likely to recommend the hospital to family and friends?

### **Theoretical Approach**

The overall aim of a conceptual model or framework is to assist with making research findings meaningful and generalizable (Polit & Beck, 2008). Robert Kane (1997, 2006) developed a framework, known as an Outcomes Model, to consider how treatment interacts with patient factors and clinical factors to produce outcomes of care. According to Kane's framework, there are three groups of factors that have substantial effects on patient outcomes: (1) clinical factors which include factors such as diagnosis, prognosis, comorbidity, and severity of disease; (2) patient factors which include age, gender, ethnicity, socioeconomic status, and payer source; and (3) treatment factors which include accessibility, availability, frequency, and side effects of care. Kane's model is generally meant to be used for quantitative experimental studies such as randomized controlled trials. However, Kane (1997) notes that it is not feasible to rely solely on randomized controlled trials for all empirical data to link outcomes to processes of care.

Academy Health (previously known as the Academy for Health Services Research and Health Policy) defines outcomes research as "research on measures of changes in patient outcomes, that is, patient health status and satisfaction, resulting from specific medical and

health interventions” (Academy Health, 2004, p. 28). Therefore, Kane’s model is adaptable for this study.

Figure 1 depicts the adaptation of Kane’s model for this study. For this study, the factors were defined as follows: (1) clinical factors included the patient’s self reported rating of overall health (as noted on the HCAHPS survey), (2) patient factors included age, gender, and race (3) treatment factors were defined as the implementation of key aspects of PFCC. The outcome for this study was defined as patient satisfaction (as measured by HCAHPS) and included general and specific measures of satisfaction with various components of care. Patient satisfaction with health care is considered an outcomes measure because it is determined after a clinical treatment has ended and recuperation has begun (Kane et al., 1997). To date, no studies have been published that utilize this model in the suggested manner.

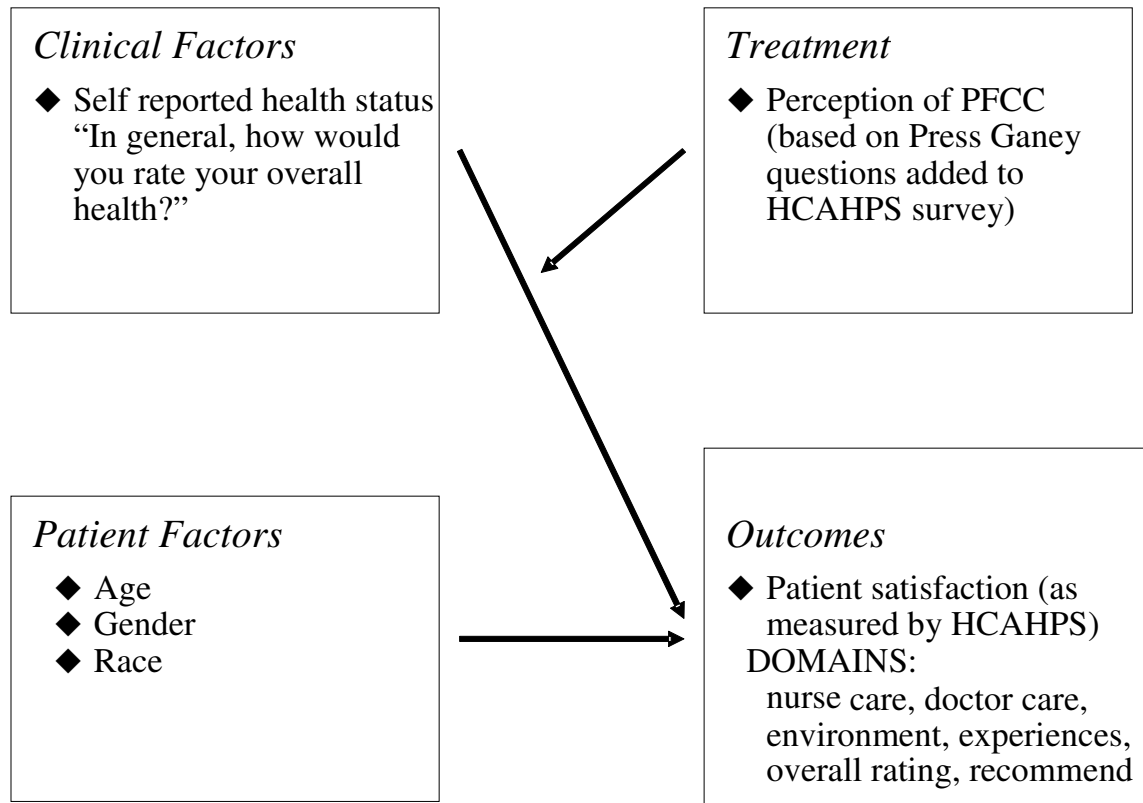
For the purposes of this study the following terms were defined.

### **Definitions**

#### **Patient-and Family-Centered Care (PFCC)**

The Institute for Family-Centered Care, founded in 1992, defines PFCC as an “innovative approach to the planning, delivery, and evaluation of health care that is grounded on mutually beneficial partnerships among health care patients, families, and providers. Patient- and family-centered care applies to patients of all ages, and it may be practiced in any health care setting” (Institute for Family-Centered Care, 2008).

As noted by Conway et al. (2006, pp. 6-7), the core concepts of patient -and family-centered care are:



*Figure 1.* Adaptation of Kane’s outcomes model for measuring the relationship between patient satisfaction as measured by HCAHPS and patient- and family-centered care (PFCC).

- **Dignity and Respect.** Providers listen to and honor patient and family perspective and choices. Patient and family knowledge, values, beliefs and cultural backgrounds are incorporated into the planning and delivery of care.
- **Information Sharing.** Providers communicate and share complete unbiased information with patients and families. Patients and families receive timely, complete and accurate information to better participate in care and decision- making.
- **Participation.** Patients and families are encouraged to participate in care and decision making at the level they choose.
- **Collaboration.** Patients, families, providers, and hospital leaders collaborate in policy and program development, implementation and evaluation; health care facility design; in professional education as well as the delivery of care.

Although these core concepts delineate what characteristics are integral to PFCC implementation, there is little in the literature that clearly defines ways in which to operationalize and measure implementation of this model of care (Carmen, Teal, & Guzzetta, 2008; Hobbs, 2009). Until recently, no tool existed in the literature that measures these concepts for the adult inpatient population (Carmen et al., 2008; Garcia, 2007). The IOM states that PFCC is a key element of a high quality health care system; therefore, it is imperative that methods to evaluate this model of care be developed (Jha et al., 2008).

In an effort to assist with measuring PFCC and its relationship to patient satisfaction, a national task force of 11 pediatric and adult care hospitals from coast to coast and the Press Ganey Research and Development Team developed, analyzed, and evaluated (measured validity and reliability) a set of questions that were used to operationalize the perception of PFCC in this study (Garcia, 2007). The questions are:

- a. How often were you and your family able to participate in decisions about your care?
- b. How often did staff explain their roles in your care?
- c. How often did the staff support your family throughout your healthcare experience?
- d. How often were your choices respected to have family members/ friends with you during your care?
- e. How often did staff respect your family's cultural and spiritual needs?

### **Patient Satisfaction (HCAHPS)**

As noted, patient satisfaction with care is generally viewed as an important component in assessing quality of care (Jha et al., 2008; Kane et al., 1997; Yellen et al., 2002). Hospitals are focusing on quality care as is mandated by the government and key influential healthcare bodies; therefore, patient satisfaction is a variable that needs to be measured. For this study patient satisfaction was measured by the scores produced on the Hospital Consumer Assessment of Health Providers Survey (HCAHPS).

The purpose of the HCAHPS survey is to provide a standardized survey instrument and data collection methodology for measuring patients' perspectives on hospital care. Prior to HCAHPS there was no national standard for collecting or publicly reporting patients' perspectives of their care experiences. Therefore, in order to make equitable comparisons to support consumer or patient choice, it became necessary to introduce a standardized approach to measuring patient satisfaction. HCAHPS is a federally mandated set of questions that can be combined with broader, customized set of hospital-specific items. HCAHPS survey items complement the data hospitals currently collect to support improvements in internal customer services and quality related activities (Kirchheimer, 2007; NAPH, 2008; National Quality Forum, 2005).

Beginning in July 2007, hospitals subject to the inpatient prospective payment system provisions are required to submit data from the HCAHPS survey (for adult patients) to receive full annual payment updates from the Center for Medicare and Medicaid Services (CMS) (Kirchheimer, 2007; National Association of Public Hospitals and Health Systems [NAPH], 2008; National Quality Forum, 2005). To date, there are no studies in the literature that have examined the impact of the PFCC model of care delivery on patient satisfaction using the HCAHPS tool.

### **Summary**

In summary, patient satisfaction, which serves as an indicator of quality care, is a key element that needs to be addressed in outcomes research. Outcomes research should also focus on measuring health interventions which will be defined in this study as the patients' perception of the implementation of PFCC. PFCC is believed to impact satisfaction and quality care. Findings from this study may inform and assist hospital and nursing leaders in developing a health care system that delivers quality care and improves patient satisfaction.

## **CHAPTER 2 REVIEW OF LITERATURE**

The purpose of this study was to examine the relationships between patient satisfaction, as measured by HCAHPS scores, and patients' perceptions of the practice of patient-and family-centered care (PFCC), as measured by the Press Ganey tool. First, this chapter presents a review of the pertinent and significant literature beginning with PFCC, the treatment factor in Kane's model defined for this study. Second, a review of patient satisfaction and the related clinical (perceived health status) and patient factors (age, gender, race) noted in Kane's Outcomes Model (see Figure 1, Chapter 1) adapted to guide this study are presented followed by a review of the HCAHPS survey. Studies that examined relationships among these factors in the inpatient hospital setting were the focus of this review. Finally, a summary will complete this review of literature.

### **Description of Search Methods**

The literature on patient satisfaction and PFCC was reviewed for the years 1993 -2009. Research studies were queried from 2000-2009 in order to maintain a recent and current focus. Key words used in the literature search included 'patient-and family-centered care', 'patient satisfaction in the hospital setting', 'HCAHPS', 'quality healthcare', and 'Kane's outcomes model'.

Electronic databases such as CINAHL, Medline, and Cochrane were searched via the search engines PubMed, Ovid, Google, and Ebsco in order to identify pertinent literature and research on these topics. Bibliographies were also used to locate relevant and foundational literature. Literature was reviewed in various sciences including nursing, medicine, health services research and the social sciences.

### **Patient-and Family-Centered Care**

Proponents of patient- and family-centered care (PFCC) propose that quality and patient satisfaction will be enhanced or improved by the implementation of this model of care delivery. However, there are no studies in the current literature that have measured the impact of PFCC on patient satisfaction with hospital care using HCAHPS. This gap in the literature needs to be addressed, especially since regulatory agencies are requiring the implementation of the key concepts of the PFCC model and the use of the HCAHPS tool.

The Picker Commonwealth Program for Patient-Centered Care, now the Picker Institute, introduced patient-centered care in 1988. At that time, the Picker group began doing research on patients' needs and preferences to gain an understanding of the patient's definition of high quality care (Conway et al., 2006). Research initially was qualitative in nature and was aimed at understanding how patients and their families defined quality of care in hospitals. The Picker Commonwealth Program for Patient-Centered Care used the findings from focus groups and patient and family interviews to develop survey instruments that measured the patient's experience of care. Telephone interviews with 6455 patients and 2000 of their identified care givers were completed within six months of discharge (Gerteis, Edgman-Levitan, Daley, & Delbanco, 1993). These surveys conducted for health care organizations in United States, Canada, and Europe, measured the patients' experiences in eight dimensions of care: (1) access, (2) respect for values and preferences, (3) coordination of care, (4) information, communication and education, (5) physical comfort, (6) emotional support, (7) involvement of family and friends, and (8) preparation for discharge and transitions in care. In addition to safe and excellent care, these dimensions are deemed to be the most critical aspects of the patient and family experience (Conway et al.; Gerteis et al., 1993). A limitation of this work, despite the



large and diverse sample size, was that the survey was administered six months post discharge. Patients and their care partners may not have had a vivid and accurate recall of inpatient experiences six months after discharge.

Another study by Bruster, Jarman, Bosanquet, Weston, Erens, and Delbanco (1994), included a stratified randomly chosen group of 5150 patients recently discharged (two to four weeks) from 108 acute care hospitals in England. Patients were interviewed face to face at home or at the place of discharge with a valid and reliable questionnaire. Findings were weighted to ensure that they were representative both of hospitals within the sample and patients within each hospital. Perceived problems with inpatient care were reported by patients with regard to staff communication (56%), pain management (33%), and discharge planning (70%) (Bruster et al., 1994). A limitation noted by the researchers included concerns over the length of the questionnaire which took on average 47 minutes to complete. These earlier studies are foundational as they aided contemporaries in defining PFCC and its core concepts.

In recent years, the term “patient-centered care” has been expanded to “patient- and family-centered care”, which highlights the role that families play in the care of patients as well as their contributions to the patient’s overall health and well-being (Conway et al., 2006; Ponte & Peterson, 2008). The Institute for Family-Centered Care, founded in 1992, defines PFCC as an “innovative approach to the planning, delivery, and evaluation of health care that is grounded on mutually beneficial partnerships among health care patients, families, and providers. Patient- and family-centered care applies to patients of all ages, and it may be practiced in any health care setting” (Institute for Family-Centered Care, 2008, p. 1).

As noted by Conway et al. (2006, pp. 6-7), the core concepts of patient -and family-centered care are:

- Dignity and Respect. Providers listen to and honor patient and family perspective and choices. Patient and family knowledge, values, beliefs and cultural backgrounds are incorporated into the planning and delivery of care.
- Information Sharing. Providers communicate and share complete unbiased information with patients and families. Patients and families receive timely, complete and accurate information to better participate in care and decision- making.
- Participation. Patients and families are encouraged to participate in care and decision making at the level they choose.
- Collaboration. Patients, families, providers, and hospital leaders collaborate in policy and program development, implementation and evaluation; health care facility design; in professional education as well as the delivery of care.

Three case studies in the literature have attempted to measure an organization's success with implementation of the core concepts of the PFCC care delivery model (Klein, 2007; McCarthy, 2007; Meyers, 2008). The first case study (Klein) found that medication errors in the neurosciences unit at the Medical College of Georgia dropped by 62%, length of stay on the unit dropped by 50%, and patient satisfaction rose to the 95<sup>th</sup> percentile from the 10<sup>th</sup> after the implementation of key aspects of PFCC. The second case study (McCarthy) at Bronson's Methodist Hospital noted that patient satisfaction scores improved to the top 5% in the Gallup's national hospital database. This study also noted nurse vacancy rates fell to 5.5% as compared to national benchmarks of 10.6%. A third case study (Meyers) from Joe DiMaggio's Children's Hospital noted that PFCC resulted in a decrease in nurse turnover from 11% to 7% and patient satisfaction scores ranked in the top 1-2% per Press Ganey surveys. While these case studies suggested that PFCC improved patient and staff satisfaction scores, reduced costs, reduced

turnover, and reduced length of stay, there was no method of scientific inquiry that specifically identified the implementation of the PFCC model as the reason for these improvements.

Additionally, no standardized tools or methods of evaluation were noted.

Carmen et al. (2008) published a landmark study that included validation of a PFCC survey to objectively measure the integration of PFCC in children's hospitals. The researchers used focus groups and expert consultation to develop content for the survey. Survey items were factor analyzed and Cronbach alpha scores on the subscales were calculated (ranged from .76-.94). Subsequently, the survey was used by 83 children's hospitals (internationally) to benchmark practices and to help them determine if they were in the beginning, intermediate or advance level of practice using the PFCC model of care. The majority of hospitals that participated were found to be implementing PFCC at the intermediate level of practice. The researchers also identified that perceptions of PFCC implementation differed by the groups (patients / families, staff, and leadership) completing the survey. Overall, families and staff tended to rate hospitals higher on PFCC practice than did leadership respondents. The findings from this study are significant as health accreditation bodies such as JCAHO and ANCC as well as reimbursement groups such as CMS (federal government) will be expecting hospitals to implement PFCC in order to be accredited and financially reimbursed (Charmel & Frampton, 2008). Having a tool to measure PFCC implementation may prove helpful to hospital leaders during strategic planning. The tool developed by these researchers was specific to pediatric institutions, however, it could be modified to encompass adult care settings as well.

### **Summary of Patient- and Family- Centered Care**

This review suggests that there is some evidence regarding the relationship of the PFCC model of care delivery to patient satisfaction and thus quality care. Historical studies have

helped to determine the current definition of PFCC. Three case studies were cited that suggested improvement with the PFCC model but research design limits generalizability of these claims. Therefore, the implementation of this model and its impact requires further research. To date, only one study (Carmen et al., 2008) has been published to objectively measure the implementation of this model in pediatric healthcare settings. However, this study did not examine the relationships between implementation and other indicators of patient satisfaction or quality. More research is needed to show the effectiveness of this model of care delivery in adult settings. Research that measures the impact of PFCC on patient satisfaction may equip and enable healthcare leaders to implement PFCC to meet quality (patient satisfaction), patient safety, and financial goals.

### **Patient Satisfaction**

Patient satisfaction research has been ongoing for the last five decades and the literature is quite extensive. This concept has been viewed as elusive and research on this topic has been approached from numerous and varied perspectives over time (Rahmqvist, 2001; Sitzia, 1999).

Earlier research focused on nursing satisfaction in the primary care and hospital settings and confirmed relationships between patient satisfaction and nursing care (Abdellah & Levine, 1957; Donabedian, 1966; Risser, 1975). As research continued, efforts became focused on the relationship between quality and patient satisfaction. Donabedian (1988) noted that factors such as structure, process and outcomes should also be included when examining this relationship.

Jenkinson, Coulter, Bruster, Richards, and Chandola (2002) suggests that patient satisfaction scores historically tend to reveal very high ratings but may not be sensitive to the delivery of quality care. This group of researchers also suggests that satisfaction surveys should

attempt to measure patients' experiences of their care and then determine how these experiences are related to satisfaction.

Wagner and Bear (2008) noted in a concept analysis of patient satisfaction with nursing care, that there is a clear link between patient satisfaction with nursing care and overall satisfaction in the literature. They also note that with the strong emphasis on the outcome of patient satisfaction, it is imperative for researchers to find methods to measure and improve patient satisfaction. Therefore, the overall patient experience with their hospitalization must encompass other dimensions of care such as physician communication, facilities, feelings about culture, family support, and decision making abilities such as those grounded in the core concepts of PFCC. Drain and Clark (2004) note that patients deserve to be allowed to evaluate the quality of their healthcare experience and that by evaluating patient satisfaction patients are empowered by making them the ultimate arbiter of the quality of their experience.

Sitzia and Wood (1997) completed a comprehensive literature review of over 100 papers published on patient satisfaction from the years 1965 through 1996. The review covered studies in both the primary care and hospital settings. In general, this review highlighted the complexity and breadth of literature on this topic. Sitzia and Wood also identified in this review the three main purposes for measuring patient satisfaction: (1) to describe healthcare services from the patient's perspective, (2) to identify problem areas in healthcare organizations and generate ideas for solutions, and (3) to evaluate healthcare which includes quality. The latter was considered the most important reason for measuring the patient's perspective of care.

Inherent in much of the literature reviewed was the notion that satisfaction is in some way determined by certain subject characteristics. Countless studies have examined patient satisfaction in a variety of venues considering multiple associated factors such as patient

socioeconomic status, education level, age, gender, race, marital status, perception of health status, physical and psychological status, and attitudes and expectations concerning care (Cleary et al., 1991; Cohen, 1996; Sahin et al., 2007; Sitzia, 1999; Sitzia & Wood, 1997; Thi et al., 2002). In addition, methodological issues such as “social desirability response bias”, “self interest or control bias”, “justification bias”, and the “Hawthorne effect” were shown to affect responses to satisfaction surveys. Results, however, are inconsistent and sometimes contradictory. This may be due largely to the considerable volume, variation, and lack of validity and reliability of the tools used to measure patient satisfaction as a quality measure (Castle et al., 2005; Sitzia; Sitzia & Wood). Nevertheless, there is some indication that specific subject characteristics do affect ratings of patient satisfaction.

The next section of the review of literature will present contemporary studies that investigate the relationship of patient satisfaction to perceived health status, age, race, and gender.

### **Perceived Health Status**

A patient’s perception of their health status has been examined to determine its impact on patients’ scores on satisfaction surveys. Xiao and Barber (2008) conducted a secondary analysis of the Medical Expenditure Panel Survey- Household Component for people ages 35-64 years to examine the effect of perceived health status on patient satisfaction as measured by access to care, provider quality and quality of care. Multivariate logistic regression was used to control for the influence of extraneous variables. The study found that perceived health status was directly related to all three measures: access, provider, and quality care. Those who rated their health care as good or excellent had a higher level of satisfaction with their health care and those who rated their health care as fair or poor had lower satisfaction levels.

Despite the large sample size (N=4417) from a 1999 full year database, this study may not be representative of the general population. The sample was primarily white (68%) and female (70%). This may have been due to the fact that the survey was to be answered by one member of the family. It has been determined that the female of the household plays a large role in decision making regarding family health issues (Kaiser Family Foundation, 2003). Therefore, the health status for each person in the household may not have been reflected. Additionally, the age range was limited to 35-64. Younger or older respondents were excluded which may have altered the outcome. This study was not necessarily administered to people who had recently had an inpatient hospital experience. Although the focus of this study is specific to the inpatient hospital experience, this research was included as a contemporary study that measured perceived health status and its relationship to patient satisfaction.

Jenkinson et al. (2002) conducted a study to determine what aspects of health care provision were most likely to influence patient satisfaction. The sample included patients 18 and older from five hospitals in Scotland. Picker surveys were mailed to patients' homes within one month of discharge from the hospital during a 12 month period. A 65% respondent rate (N=2249) was noted. Patients were randomly selected from the hospital information system and were stratified by provider unit, age, and gender. The sample representation was men (46%) and women (53%). Most respondents described their experience as good, very good, or excellent (90%).

A regression analysis was done to determine which of the seven dimensions of the Picker survey (including age, gender, and self reported health status) seemed to be significantly associated with patient satisfaction as the dependent variable. Spearman coefficients were reported for all correlations. A multivariate linear regression revealed that age ( $p < 0.02$ ) is an

important factor in reported satisfaction, but that self-reported health status ( $p=0.27$ ) was not. The most important factors that influence patient satisfaction, as indicated by the regression, appeared to be physical comfort, emotional support, and respect for patient preferences. Furthermore, satisfaction was highly associated with willingness to recommend to others the hospital in which they received care. The evidence provided here suggests that the patients' perception about the manner in which care is delivered is more closely related to satisfaction than age or the perception of one's health. Respondent bias could be a risk as the surveys were mailed to patients and dependent upon the patients' desire to respond.

Thi et al. (2002) conducted a study in Viet Nam that included 533 patients ages 18-80 that had a hospital stay of 3 days or more and were two weeks post discharge (to home) an inpatient visit with medical and surgical diagnoses. Patient satisfaction was measured using the Patient Judgments of Hospital Quality survey via mailings. Pearson coefficient, ANOVA, and Student's t-test were used to analyze the relationship between sociodemographic factors and patient satisfaction. All variables that were significant at the  $p<0.05$  level were subsequently used in multivariate analyses. The findings in this study were consistent with others that stated that age (older patients) and perceived health status significantly impact patient satisfaction. Also noted in this study; men tended to be more satisfied than women. The authors concluded that these findings should be used to help direct quality improvement efforts by targeting groups that are at risk of having worse experiences in the hospital such as women, younger patients, and those who report a poorer health status. Researchers did not use a random sampling method and relied on patients to mail back their responses to the survey which risks respondent bias.

Rahmqvist (2001) conducted a study to examine age, health status and other factors and their relationship to patient satisfaction. The study sample included patients ranging from 1-94



years of age who had been discharged within six weeks from one of four hospitals in Sweden. The Patient Satisfaction Index (PSI) was the survey used to obtain data. The survey was mailed to all patients discharged with a 69% (N=3400) response rate. This study revealed via regression analyses that age and perceived health status were significantly related to satisfaction as measure by the PSI. This study noted that the older patient was more satisfied with care. In contrast to Jenkinson et al.'s (2002) study, the patient's who rated their health the poorest scored their satisfaction the highest. Correlations with gender were not found in this study. The study also examined differences among the specialties offered in the four hospitals. Only gynecology stood out as a specialty that had more satisfied patients. The authors speculate that this may be related to the physician-patient relationship which was not examined as a part of this study.

The impact of perceived health status on inpatient satisfaction is not clear. Neither, historical studies nor the more contemporary studies noted here are definitive regarding whether or not perceived health status is indeed a determinant in the patient's measure of the satisfaction with the care he received. This discrepancy may be attributed to the mortality associated with certain diseases (not addressed in the studies noted in this review). This is very difficult to measure in large scale randomized studies that are not population or disease specific. Thus, a study that uses a standardized tool and sampling process whereby results could be compared nationally across all hospitals may prove valuable in helping to further discern the impact of perceived health status on inpatient satisfaction.

### **Age, Gender, Race**

While researchers can not alter patient characteristics such as age, gender, and race when investigating patient satisfaction, their role is important for at least two reasons. One is the need to potentially adjust for these factors when making certain comparisons such as among medical

specialties. Second, noting these factors makes it possible for providers to target patients who may be at risk for less positive experiences or outcomes (Thi et al., 2002).

Age, gender, and race have been studied repeatedly in patient satisfaction studies over the last 50 years. These studies have been conducted in a variety of inpatient and outpatient settings and have addressed numerous physical, emotional, and psychosocial characteristics as well (Sitzia & Wood, 1997). In general, there has been more consistency in the relationship between age and patient satisfaction than the relationship of patient satisfaction to either gender or race (Jenkinson et al., 2002; Rahmqvist, 2001; Sitzia & Wood, 1997).

Quintana et al. (2006) utilized a self developed, valid and reliable survey tool to measure predictors of patient satisfaction. This tool measured six different domains. Higher scores indicated higher levels of patient satisfaction. A cross-sectional study of patients discharged from the medical and surgical wards from four acute care hospitals (N=1910) was conducted. The survey was mailed to a random sample of 650 discharged patients from each hospital with a 74% response rate. Age was correlated with all six domains (information and communication with doctors, nursing care, comfort, visiting, privacy, cleanliness) and gender was correlated with three domains (comfort, visiting, privacy). These correlations based on ANOVA and Chi-squared analyses were statistically significant at the  $p < 0.05$  level.

Older patients and men tended to have higher satisfaction scores which remains consistent with previous studies (Cohen, 1996; Thi et al., 2002). Additionally, the study results suggest that those who were married or cohabitated and those that had lower levels of education were more satisfied. The researchers did rely on patients to self-administer the survey, which can lead to risk of respondent bias. This study supports that there is some evidence that patient sociodemographic factors, at least age and gender, do affect patient satisfaction levels.

Thi et al. (2002) conducted a study in Viet Nam that included 533 patients ages 18-80 that had hospital stay of 3 days or more and were two weeks post discharge (to home) an inpatient visit with medical and surgical diagnoses. Patient satisfaction was measured using the Patient Judgments of Hospital Quality survey via mailings. Pearson coefficient, ANOVA, and Student's t-test were used to analyze the relationship between sociodemographic factors and patient satisfaction. All variables that were significant at the  $p < 0.05$  level were subsequently used in multivariate analyses. The findings in this study were consistent with others that stated that age (older patients) and perceived health status significantly impact patient satisfaction. Also noted in this study; men tended to be more satisfied than women. This finding was consistent with Quintana et al.'s (2006) study that stated men were more satisfied than women with the care they received. The authors concluded that these findings should be used to help direct quality improvement efforts by targeting groups that are at risk of having worse experiences in the hospital such as women, younger patients, and those who report a poorer health status. Researchers did not use a random sampling method and relied on patients to mail back their responses to the survey which risks respondent bias.

Race has not been studied as extensively as age and gender with regards to patient satisfaction with inpatient stays. Recent literature offers little guidance about the expected effects of race on inpatient satisfaction scores (Young, Meterko, & Desai, 2000).

Young et al. (2000) examined the extent to which a patient's satisfaction scores are related to demographic characteristics (age, gender, race, health status and income) of patients. A secondary analysis of data from the Veteran's Health Administration (VHA) which contained veteran's responses to self-administered satisfaction questionnaires and demographic data was completed. This study also compared demographic data with institutional characteristics. The

inpatient questionnaire was comprised of nine subscales that consisted of three to five items each. The VHA randomly selected 175 patients from each regional hospital across the United States that were discharged home within three months. The questionnaires were distributed using a mail out, mail back methodology. The response rate for this study was 61% (N=34,359). The researchers used 2-level, random effects regression models for analysis. Survey respondents were overwhelmingly male and the average age was between 60 and 70. Results demonstrated that age, health status, and race have statistically significant effects on patient's satisfaction with their care. Older patients, patients who perceive better health status and whites (versus non whites) were more satisfied with care. The researchers note that it is important to consider whether these relationships reflect differences in patient expectations and values or reflect actual differences in the way patients are treated. Despite the very large sample size, this study had primarily male subjects most likely due to the military nature of the sample which implies a lack of generalizability beyond the VHA. Again, respondent bias may be a risk as patients were asked to mail back the questionnaires.

Racial and ethnic disparities in health care are known to affect access to care and evidence suggests race and ethnicity are also significant predictors of quality of health care received (Barr, 2004; IOM, 2003). The Institute of Medicine (2003) has noted in various studies, mostly specific to primary care settings, and reviews that in general ethnic minority patients are found to receive a lower quality of healthcare. However, there is very little evidence that race has an effect on satisfaction with care.

Barr (2004) conducted a study in private primary care settings to look at the impact of patient satisfaction in the primary care setting. Using a real time study, 537 patients selected at random from those entering the practice were interviewed. Barr found after regression analyses

that age, health status and education did have a significant impact on satisfaction scores. No differences in overall satisfaction between whites and non-whites were noted. However, he did find that ethnic minorities (mostly Asian) are less satisfied than whites with their interactions with physicians. Therefore, he suggested that satisfaction tools should include assessments of satisfaction directly related to the care provided by the provider. While this study does not specifically address satisfaction in the inpatient setting, it was included as a contemporary study that addresses race and patient satisfaction as minimal research was found that addressed race and inpatient satisfaction with care. Barr's study suggests that satisfaction with care is linked to satisfaction with the provider of care in some ethnic groups and tools which measure satisfaction need to include a measure of provider satisfaction.

### **Summary of Patient Satisfaction**

In general, most patients report being satisfied with care which makes finding predictors of satisfaction and dissatisfaction more difficult. Attempts have been made to determine the features of patient care that are likely to influence satisfaction and thus quality of patient care as noted in the studies reviewed. There is some consensus that: (1) patients should be allowed to measure their satisfaction with care, (2) the patient experience is a measure of the quality of care received, and (3) patient satisfaction measures can assist organizations in quality improvement opportunities.

Perceived health status, age, gender, and race have been studied but evidence of impact on patient satisfaction is inconsistent with the exception of age and gender. Older patients tend to be more satisfied with their care and men tend to be more satisfied than women with their care in the hospital setting. As noted previously, this may be largely due to the lack of utilization of consistent, valid, and reliable tools and collection methods. Also as noted in the studies in this

review, it is important to consider the impact of dimensions of care beyond perceived health status, age, gender, and race on patient satisfaction.

### **HCAHPS (as a Measure of Patient Satisfaction)**

Patient satisfaction surveys have proliferated over the last several decades. Many of these tools were not valid and reliable beyond specific venues or populations. These satisfaction tools have varied significantly in content, method of administration, sampling processes and administration protocol making generalizability difficult at best (Castle et al., 2005; Sitzia, 1999; Quintana et al., 2006).

Using a standardized tool, along with standardization in sampling, administration protocol, and mode of administration could be beneficial in helping to identify predictors of patient satisfaction (Castle et al., 2005). The Hospital Consumer Assessment of Healthcare Providers survey (HCAHPS) incorporates these factors.

Beginning in July, 2007 hospitals subject to the inpatient prospective payment system provisions are required to submit data from a standardized survey of their adult patients to receive their full annual payment updates from the Center for Medicare and Medicaid Services (CMS). Beginning in March 2008, the data from these patient surveys were posted publicly on the Hospital Compare Website. Hospitals that choose not to participate can lose up to two percentage points from their annual Medicare payment update (Kirchheimer, 2007; NAPH, 2008).

This first national standardized survey on hospital patient experience, known as HCAHPS, was a joint project of the CMS and the Agency for Healthcare Research and Quality (AHRQ) and was endorsed by the National Quality Forum (NQF) in May 2005 (National Quality Forum, 2005). The NQF endorsement represents the consensus of health care providers,

professional associations, purchasers, federal agencies, and research and quality organizations (HCAHPS on-line, 2009).

Three broad goals have shaped the HCAHPS survey. First, the survey was designed to produce comparable data on the patient's perspective of care that allows objective and meaningful comparisons between hospitals on seven domains (communication with doctors, communication with nurses, responsiveness of hospital staff, cleanliness and quietness of the hospital, pain control, communication about medicines, and discharge information) that are important to consumers. Second, public reporting of the survey results were designed to create incentives for hospitals to improve their quality of care. Third, public reporting will serve to enhance public accountability in health care by increasing the transparency of the quality of hospital care provided in return for public investment. With these goals in mind, the HCAHPS development team took substantial steps to assure that the survey was credible, useful, and practical (Agency for Healthcare Research and Quality [AHRQ], 2003; HCAHPS on-line, 2009).

CMS and AHRQ partnered to develop the HCAHPS survey. AHRQ carried out rigorous, scientific processes to develop and test the HCAHPS instrument. These processes included a public call for measures; review of existing literature; cognitive interviews; consumer focus groups; stakeholder input; public response to several Federal Register notices; a three state pilot study; consumer testing; and small scale field tests. With these processes, the HCAHPS team reviewed the tool for reliability, validity, and agreement with the Institute of Medicine's indicators of quality health care (NAPH, 2008).

CMS and AHRQ designed a three state pilot test to draft the HCAHPS survey in 2003. At that time many hospitals already used patient satisfaction surveys designed by and administered by vendors as part of their quality improvement processes. However, the questions

and methodologies were customized and did not allow comparisons across hospitals. The HCAHPS survey was developed to meet the need for publicly reporting patient perspectives of the care they received while in the hospital and to permit adequate comparisons across all hospitals (AHRQ, 2003).

A core group of 24 hospitals (7 in Arizona, 6 in Maryland, and 11 in New York) and a non-core group of 85 hospitals were recruited for the pilot study. To ensure a mix of different types of hospitals, each core set of hospitals in each state had to include: one academic medical center (AMC); one urban non-AMC; one large suburban hospital; one rural hospital; and one smaller (<250 beds) hospital. The target number of survey completions in each core hospital was 450 divided equally among medical, surgical, and obstetric services (150 per service). The target for non-core hospitals was 150 for all three services combined. Surveys were to be completed by patients who had an overnight hospital stay and were discharged between December 2002 and January 2003. Psychiatric, pediatric, and OB/ GYN patients who had stillborn babies or had miscarriages were excluded (AHRQ, 2003).

Empirical analyses of the HCAHPS pilot data from the original 66 item survey were performed to evaluate the degree to which patient experiences corresponded with the IOM's nine domains of care: respect for patient's values; preferences and expressed needs; coordination of care; information, communication, and education; physical comfort; emotional support; involvement of family and friends; transition and continuity; and access to care. While some of the survey items correlated strongly with these domains, there was inconsistency with the observed data. Exploratory factor analyses at the individual and hospital level helped to refine the structure. Then, the revised structure was evaluated using item-scale correlations, internal consistency reliability, hospital-level reliability, and correlations with global ratings. Based on



these results as well as feedback from responses to public notices in the Federal Register, the original HCAHPS survey was revised to include only 32 questions encompassing seven domains: nurse communication; nursing services; doctor communication; physical environment; pain control; communication about medications; and discharge information. A single item was also included to assess whether or not a patient would recommend the hospital to others. These seven composites had a median internal consistency reliability of 0.69 and a median hospital reliability of 0.74 in the pilot study. Variance components analyses were also performed to estimate how much of the variation in reports and ratings are attributable to regions, hospitals, service category, and patients. The results suggest that hospital service lines (medical, surgical, obstetrics), self reported global health status, age, and education should be controlled for when comparing hospital scores (AHRQ, 2003).

Subsequent revisions of the HCAHPS survey based on further studies and review of the National Quality Forum (NQF), has yielded the current 27 item survey. Questions on the survey encompass key aspects of the hospital experience (communication with doctors, communication with nurses, responsiveness of the hospital staff, cleanliness and quietness of the hospital, pain control, communication about medicines, and discharge information). Patient demographic questions are also included (National Quality Forum [NQF], 2005) (see Appendix A). The National Quality Forum endorsed the survey in 2005 with the specifications that sampling methodology, mode of administration, scoring methods and patient mix adjustment, and methods for reporting and analyzing data and reporting results were standardized (NQF).

Per federal government requirements, hospitals' survey samples must: include a minimum of 300 patients per year; be administered between 48 hours and 6 weeks after discharge; be administered by mail, phone, mixed mode of mail and phone, or active interactive

voice response methods only to the patient himself; be chosen by a simple random sampling method; be maintained as a rolling 12 month data file for the hospital; be administered as a standalone instrument or combined with hospital specific questions; include patients 18 years or older that spent at least one night in the hospital; and exclude prisoners, patients with a foreign home address, patients discharged to hospice care, patients less than 18, and patients discharged with a psychiatric diagnosis (NQF, 2005).

### **Summary for HCAHPS**

In summary, HCAHPS is a nationally standardized tool to measure patients' satisfaction with their hospital care has been developed, rigorously tested, and now serves as at least one method that hospitals must use to meet federal government requirements for meeting patient safety and quality of care goals. The use of this relatively new tool along with other quality improvement initiatives can assist hospitals and healthcare leaders in improving the care and quality that patients receive during their hospital stay.

## **CHAPTER THREE METHODS AND DESIGN**

The purpose of this study was to examine the relationships between patient satisfaction, as measured by the Hospital Consumer Assessment of Healthcare Providers survey (HCAHPS), and patients' perceptions regarding the practice of key aspects of patient-and family-centered care (PFCC) on inpatient care units at an academic medical center in the southeastern United States.

### **Research Design**

A descriptive cross-sectional research design was used. Relationships between patient factors such as race, gender, age, clinical factors such as self reported health status and patient satisfaction and perception of PFCC implementation were examined. This research design is appropriate as the aim of this study was to describe a relationship between variables in a specific population at a particular time (Polit & Beck, 2008).

### **Setting and Sample**

The population for this study was adult patients discharged from inpatient units in an academic medical center (AMC) in the southeastern United States. The medical center is an 861 bed tertiary care hospital with 8 adult general care units, 5 adult intermediate care units, and 5 adult intensive care units. Per federal guidelines, only patients 18 or older that speak English, spent at least one night in the hospital, were not discharged as a psychiatric patient, did not have a foreign address, were not prisoners, and were not discharged to hospice were included. The sample included all patients who met these criteria and were discharged from an inpatient unit from October through December 2009.

## **Instrumentation**

Patient satisfaction was measured using the Hospital Consumer Assessment of Health Providers Survey (HCAHPS). Patient-and family-centered care (PFCC) was measured by five additional questions from Press Ganey that were added to the HCAHPS survey.

### **HCAHPS Survey**

The HCAHPS core survey is composed of 27 questions. Questions on the survey encompass seven key aspects of the hospital experience (communication with doctors, communication with nurses, responsiveness of the hospital staff, cleanliness and quietness of the hospital, pain control, communication about medicines, and discharge information). Patient demographic questions are also included (NQF, 2005).

See Appendix A for copy of the core survey. Fourteen scaled questions are included with always, usually, sometimes and never as choices for the responses. Six questions are yes / no responses. One question is based on a 1-10 Likert scale. Another question addresses patient disposition, five questions address specific patient demographics and one open ended question that addresses the hospital experience is included by HealthStream, the vendor contracted to administer the survey.

The current version (27 items) of the HCAHPS survey was developed in 2003 after surveying 19,720 patients representing 132 hospitals. Using exploratory and confirmatory factor analyses, construct validity was assessed as well as the relationship of the scale to the overall hospital satisfaction rating (Goldstein et al., 2005; Keller et al., 2005).

Individual interviews were conducted to determine the importance of each item to overall hospital satisfaction, a further assessment of construct validity. Items which were ranked as not important to patients were deleted. This process yielded a 50% reduction of items in the original

survey representing the seven domains previously noted. These items were able to discriminate the level of quality in different hospitals and had comparable levels of internal consistency to other measures representing patient satisfaction (Goldstein et al., 2005; Keller et al., 2005).

The identified subscales and their internal consistencies defined by Cronbach's coefficient alpha are: (1) communication with doctors (.88), (2) communication with nurses (.86), (3) responsiveness of hospital staff (.72), (4) cleanliness and quietness of the hospital (.51), (5) pain control (.83), (6) communication about medicines (.67), and (7) discharge information (.51). The median internal consistency reliability was (.72) (Keller et al., 2005).

Hospitals are permitted to add more questions to the core survey. The AMC where the sample was drawn for this study added one open ended question regarding staff commendation, one patient safety question and one open ended question that addresses what the hospital may have done better. Since the questions are scripted, in some cases if a patient answers "no" to a question, then the next question may be skipped as it would not be applicable

The Centers for Medicare and Medicaid Services (CMS) elects to report HCAHPS information with "top box" scores on the hospital compare website, [hospitalcompare.hhs.gov](http://hospitalcompare.hhs.gov). Specifically addressing the Likert scale (1-10) question that asks the participants to rate the hospital overall, the "top box" scores include the percentage of valid responses that are 9 or 10. Those questions answered with "don't know" and those that patients refused to answer are removed from the sample. For this study, all data was reviewed.

### **PFCC Press Ganey Questions**

There is currently no valid and reliable tool in the literature that measures the implementation or perception of PFCC in hospitals that provide care to adult patients. However, in 2007, a national task force comprised of eleven hospitals and health care organizations

including a private research and development vendor (Press Ganey) authored five questions that produced a reliability measure of .93 for the measurement (for the inpatient adult population) of the key elements of PFCC and the impact on patient satisfaction (Garcia, 2007). See Appendix B for questions. These questions were added to the HCAHPS core survey and were administered during phone interview by HealthStream, the contracted vendor, for this study. These five additional questions were scaled to mimic other HCAHPS questions with options for reply to include always, usually, sometimes, and never. Therefore, patients surveyed for this study could answer up to 35 total questions.

### **Procedures**

After obtaining the support of senior leadership at the AMC, a proposal was submitted to the University Medical Center Institutional Review Board (UMCIRB) that serves the associated university and the hospital for approval. This study was deemed as exempt by the UMCIRB as it only involved querying existing data that included no identifying information of the patient sample to examine relationships. See Appendix C for approval letter.

Additionally, the researcher convened a meeting of key quality and operational executives for the AMC to obtain approval to add the Press Ganey questions that measured the patients' perception of PFCC to the HCAHPS survey process for one quarter, October-December 2009. The Chief Quality Officer for the health system negotiated with the vendor and obtained an agreement to include these additional questions to the survey process for this study. The researcher had direct email communication with the vendor to insure accuracy of wording for these additional questions.

Patients who were eligible for the survey from the AMC were downloaded into a database weekly via an automated process in the information systems division and sent to

HealthStream, the vendor that administers the satisfaction tool (HCAHPS) for the AMC. The vendor then used a random function in the software to assign a random number to each patient in the data file, then a sort was completed by this number and a standard sampling ratio was used to identify potential participants for the survey. The survey was administered by phone; therefore, if a patient refused to participate, then he or she was eliminated from the sample. The vendor reported an 8.6% refusal rate (J. Eggers, HealthStream, personal communication, February 16, 2010).

If there was no answer to the initial telephone survey call, up to five attempts (once per week for five weeks) were made to contact the patient. If the attempts failed, then that patient was removed from the sample. The next randomly assigned patient was called. Informed consent was implied by agreeing to participate in the survey (J. Eggers, HealthStream, personal communication, February 16, 2010).

### **Data Analysis**

Once data was obtained from the vendor, it was imported into version 16.0 SPSS and examined for missing items and outliers. Descriptive statistics such as means and frequencies were used to describe the sample. Several of the variables were recoded to permit appropriate statistical analyses to be performed.

The psychometric properties of each tool (HCAHPS and PFCC measured by the Press Ganey survey) were examined for the population studied. This was accomplished by measuring reliability via measurement of the Cronbach's coefficient alpha.

The primary research questions which examined the relationships between the independent variables (age, race, gender, perceived health status, and the implementation of key aspects of PFCC) noted in the outcomes model adapted from Kane (1997, 2006) and the

dependent variable (patient satisfaction as measured by HCAHPS) were measured by use of Gamma correlation coefficient and stepwise logistic regression analyses. A statistician was consulted to confirm the appropriate statistical methods of analysis. Statistical significance was set at the  $p < .05$  level.

### **Summary**

This chapter described the setting and sample, sampling methods, and data analysis plan used to address the research questions posited for this study. Also included is the description of the HCAHPS instrument used to measure patient satisfaction as well as the collection procedures to obtain the patient satisfaction data. Additionally, this chapter outlined methods to measure patient perception of PFCC with the addition of five questions from Press Ganey to the HCAHPS survey.



## **CHAPTER FOUR RESULTS**

This chapter presents the results of this study. Demographic characteristics that describe the study sample and an analysis of each of the research questions are presented.

### **Characteristics of the Sample**

Frequencies and percentages were used to describe the categorical variables. Means, standard deviations, and ranges were computed to further describe the continuous variables. There were 1016 respondents included in this sample.

Demographic characteristics of the sample are displayed in Table 1. Most of the respondents in this sample were white (57%) and female (69%) with a mean age of 52.8 years and a range of 18-93 years. Seventy percent of the sample rated their overall health (perceived health status) as good, very good, or excellent. The majority of respondents were black or white. Less than five percent (5%) of the respondents represented other ethnic groups such as Hispanic, Asian, American Indian or Alaskan Native, and Hawaiian or Pacific Islander.

### **Descriptive Analysis of Responses to Surveys**

Frequencies and distributions of the questions answered for the HCAHPS survey are displayed in Table 2. As previously noted, fourteen scaled questions are included on the survey with always, usually, sometimes and never as choices for the responses. These questions specifically addressed the patients' responses to: care received from nurses; care received from doctors; the physical environment (cleanliness and quietness) of the hospital; and certain hospital experiences regarding receiving timely help with bedpan or bathroom needs, pain management, and education regarding new medications.

When reviewing the responses of those that responded "always" on the survey, the lowest percentage in the "care from nurses" domain was related to response of timely help after the call

Table 1

*Demographics and Characteristics of the Study Sample (N=1016)*

| Demographics and Characteristics | Frequency<br>N (%) | Mean (SD)   | Range |
|----------------------------------|--------------------|-------------|-------|
| Age                              |                    | 52.8 (18.9) | 18-93 |
| 18-29                            | 165 (16.2)         |             |       |
| 30-49                            | 239 (23.5)         |             |       |
| 50-64                            | 288 (28.3)         |             |       |
| 65+                              | 324 (31.9)         |             |       |
| Gender                           |                    |             |       |
| Male                             | 317 (31.2)         |             |       |
| Female                           | 699 (68.8)         |             |       |
| Race                             |                    |             |       |
| White                            | 583 (57.4)         |             |       |
| African American                 | 324 (31.9)         |             |       |
| Other                            | 49 (4.8)           |             |       |
| Missing                          | 60 (5.9)           |             |       |
| Perceived Health                 |                    | 2.74 (1.2)  | 1-5   |
| Excellent                        | 157 (15.5)         |             |       |
| Very Good                        | 262 (25.8)         |             |       |
| Good                             | 293 (28.8)         |             |       |
| Fair                             | 192 (18.9)         |             |       |
| Poor                             | 68 (6.7)           |             |       |
| Missing                          | 44 (4.3)           |             |       |

Table 2

*Frequency and Distribution of HCAHPS Responses*

|                                         | M(SD)      | Range | Always<br>N (%) | Usually<br>N (%) | Sometimes<br>N (%) | Never<br>N (%) | Total |
|-----------------------------------------|------------|-------|-----------------|------------------|--------------------|----------------|-------|
| <b>CARE FROM NURSES</b>                 |            |       |                 |                  |                    |                |       |
| Nurse treats with courtesy and respect  | 3.87 (.44) | 1-4   | 909 (91)        | 59 (5.9)         | 31 (3.1)           | 3 (.3)         | 1002  |
| Nurse listens carefully to you          | 3.80 (.51) | 1-4   | 851 (84)        | 118 (12)         | 38 (3.8)           | 4 (.4)         | 1011  |
| Nurse explains so you can understand    | 3.75 (.59) | 1-4   | 832 (82)        | 107 (11)         | 65 (6.4)           | 6 (.6)         | 1010  |
| Nurse help timely after call button     | 3.56 (.71) | 1-4   | 626 (68)        | 203 (22)         | 84 (9.1)           | 11 (1.2)       | 924   |
| <b>CARE FROM DOCTORS</b>                |            |       |                 |                  |                    |                |       |
| Doctor treats with courtesy and respect | 3.86 (.45) | 1-4   | 908 (90)        | 66 (6.6)         | 28 (2.8)           | 5 (.5)         | 1007  |
| Doctor listens carefully to you         | 3.80 (.53) | 1-4   | 864 (86)        | 95 (9.4)         | 42 (4.2)           | 7 (.7)         | 1008  |
| Doctor explains so you can understand   | 3.77 (.56) | 1-4   | 837 (83)        | 114 (11)         | 46 (4.6)           | 7 (.7)         | 1004  |
| <b>HOSPITAL ENVIORNMENT</b>             |            |       |                 |                  |                    |                |       |
| Room and bathroom kept clean            | 3.68 (.67) | 1-4   | 780 (78)        | 136 (14)         | 71 (7.1)           | 14 (1.4)       | 1001  |
| Quiet at night                          | 3.53 (.77) | 1-4   | 676 (67)        | 207 (21)         | 95 (9.5)           | 26 (2.6)       | 1004  |
| <b>EXPERIENCE IN THE HOSPITAL</b>       |            |       |                 |                  |                    |                |       |
| Timely help with bedpan/ bathroom       | 3.64 (.69) | 1-4   | 465 (75)        | 100 (16)         | 50 (8.0)           | 8 (1.3)        | 623   |
| Pain was well controlled                | 3.61 (.68) | 1-4   | 585 (71)        | 165 (20)         | 67 (8.1)           | 8 (1.0)        | 825   |
| Staff did all they could to manage pain | 3.79 (.52) | 1-4   | 695 (84)        | 93 (11)          | 37 (4.5)           | 2 (.2)         | 827   |
| New medicines explained                 | 3.74 (.65) | 1-4   | 429 (83)        | 52 (10)          | 22 (4.3)           | 12 (2.3)       | 515   |
| New medicine side effects               | 3.26 (1.1) | 1-4   | 308 (61)        | 75 (15)          | 63 (13)            | 56 (11)        | 502   |

Table 2

*Frequency and Distribution of HCAHPS Responses (continued)*

## OVERALL RATINGS

|                          | M<br>(SD)     | Range | Worst Hospital |               |               |               |               |               |               | Best Hospital |               |               |                | Total |
|--------------------------|---------------|-------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|-------|
|                          |               |       | 0<br>N<br>(%)  | 1<br>N<br>(%) | 2<br>N<br>(%) | 3<br>N<br>(%) | 4<br>N<br>(%) | 5<br>N<br>(%) | 6<br>N<br>(%) | 7<br>N<br>(%) | 8<br>N<br>(%) | 9<br>N<br>(%) | 10<br>N<br>(%) |       |
| Rate<br>this<br>hospital | 9.26<br>(1.2) | 0-10  | 1<br>(.1)      | 0<br>(0)      | 2<br>(.2)     | 4<br>(.4)     | 1<br>(.1)     | 16<br>(1.6)   | 9<br>(.9)     | 28<br>(2.8)   | 123<br>(12)   | 230<br>(23)   | 575<br>(57)    | 989   |

|                                                    | M<br>(SD)     | Range | Definitely Yes | Probably Yes | Probably No | Definitely No | Total |
|----------------------------------------------------|---------------|-------|----------------|--------------|-------------|---------------|-------|
|                                                    |               |       | N<br>(%)       | N<br>(%)     | N<br>(%)    | N<br>(%)      |       |
| Recommend this<br>hospital to family or<br>friends | 3.84<br>(.43) | 1-4   | 842<br>(86)    | 119<br>(12)  | 6<br>(.6)   | 7<br>(.7)     | 974   |

button was pressed (68%, N=626). The lowest percentage, though still receiving a high rating, in the “care from doctors” domain was whether the doctor explained things so they could be understood (83%, N= 837). Ratings were generally lower for the “hospital environment” domain regarding cleanliness (78%, N=780) and quiet at night (67%, N= 676) and “experiences in the hospital” domain with management around new medications (83%, N= 429; 61%, N=308), timely help with the bedpan/ bathroom needs (75%, N=465), and pain management (71%, N=585; 84%, N=695).

Additionally, two questions that required ratings of the hospital were included. For the overall hospital rating, respondents were asked to rate the hospital using a scale from 0 (worst hospital possible) to 10 (best hospital possible). Of the 989 respondents that answered this question, 805 (80%) rated the hospital a 9 or 10. Respondents were also asked if they would recommend the hospital to family and friends and were asked to respond with definitely no (1), probably no (2), probably yes (3), or definitely yes (4). Of the 974 respondents that answered this question, 842 (86%) responded definitely yes. Therefore, these two questions were negatively (highly favorable scores) skewed for the study sample. Even though respondents gave lower scores on the “hospital environment” and “experience in the hospital” domains they still gave high overall ratings for the hospital and likelihood to recommend questions and for the “care from nurses” and “care from doctors” domains.

Frequencies and distribution of the questions answered for the PFCC Press Ganey survey are displayed in Table 3. Respondents were asked five questions regarding their perceptions of PFCC and were asked to respond with never (1), sometimes (2), usually (3), and always (4). The highest possible score for each question was four. Possible total scores ranged from 5-20. The two questions that were most often rated as “always” were “choices were respected to have

Table 3

*Frequency and Distribution of PFCC Press Ganey Responses*

|                                                      | M(SD)      | Range | Always<br>N (%) | Usually<br>N (%) | Sometimes<br>N (%) | Never<br>N (%) | Total |
|------------------------------------------------------|------------|-------|-----------------|------------------|--------------------|----------------|-------|
| You and family able to participate in care decisions | 3.74 (.62) | 1-4   | 800 (83)        | 100 (10)         | 53 (5.5)           | 14 (1.4)       | 967   |
| Staff explained their roles in your care             | 3.72 (.62) | 1-4   | 773 (80)        | 123 (13)         | 60 (6.2)           | 10 (1.0)       | 966   |
| Staff supported your family                          | 3.74 (.63) | 1-4   | 779 (82)        | 110 (12)         | 46 (4.8)           | 16 (1.7)       | 951   |
| Choices respected to have family/friends present     | 3.85 (.46) | 1-4   | 848 (89)        | 71 (7.5)         | 28 (2.9)           | 4 (.4)         | 951   |
| Respect for cultural/spiritual needs                 | 3.87 (.48) | 1-4   | 808 (91)        | 52 (5.8)         | 19 (2.1)           | 10 (1.1)       | 889   |

family and friends present during care” (89%, N = 848) and “respect for cultural and spiritual needs” (91%, N= 808). The lowest rating was for “staff explaining their roles in care” (80%, N=773).

### **Psychometric Research Questions**

Question 1: What is the internal reliability of the HCAHPS survey items? The internal reliability of the HCAHPS survey items for the study sample was .81 as measured by Cronbach’s coefficient alpha.

Question 2: What is the internal reliability and dimensionality of the five-item Press Ganey survey? The internal reliability for the Press Ganey survey items for the study sample was .77 as measured by Cronbach’s coefficient alpha. A principal component factor analysis was computed for these five questions as confirmation that the five items constitute a single dimension. Component (factor) loading values ranged from .67-.82.

### **Primary Research Questions**

Question 1: Is there a relationship between the perception of PFCC (total score on Press Ganey survey items) and the overall hospital rating and the likelihood to recommend rating (HCAHPS survey)? Due to the highly favorable scores (negative skewness) on the overall hospital rating (81% of the respondents chose 9 or 10) and the likelihood to recommend rating (86% of the respondents chose definitely yes); it was necessary to use a non-parametric correlation statistic (coefficient) to examine relationships between these two ratings and the perception of PFCC in this study.

Generally, Spearman’s Rho is recommended when computing correlations between ordinal variables. However, the Gamma correlation coefficient is preferred when there is an extreme skewness in the data and when many “tied” observations or rankings in the responses

are noted (Hill & Lewicki, 2006). The Gamma coefficient computes the level of association between two variables based on the number of agreements (Na) and the number of inversions or differences (Ni) ;  $G = (Na - Ni) / (Na + Ni)$ . A positive Gamma indicates that there are more agreements than inversions and that there is a positive relationship between two sets of ratings (Hill & Lewicki, 2006). Table 4 displays the Gamma correlations with PFCC total score and the overall rating of the hospital and the likelihood to recommend the hospital. A strong positive correlation ( $r = .62$  and  $r = .69$ ) was noted between these variables. Each correlation was significant at the  $p < .01$  level.

Due to the skewness of the data, the PFCC total score was dichotomized (18-20 and <18) to assist in equalizing the percentage of respondents at the top of the PFCC total score and those who scored at the top totals for overall rating of the hospital and likelihood to recommend. Table 5 displays frequencies and distributions for PFCC total scores and the overall hospital rating and likelihood to recommend questions from the HCAHPS survey. It is noted of those who scored between 18-20 on the PFCC total score, 88% reported scores of 9 or 10 on the overall hospital rating, while only 47% of those who scored <18 on the PFCC total score reported scores of 9 or 10. For those with total PFCC scores of 18-20, 92% said “definitely yes” that they would recommend the hospital to family and friends compared to 58% of those who scored < 18 on the total PFCC score. Therefore, this data suggests a strong relationship between the respondents’ perception of PFCC and their tendency to give high scores for the overall rating of the hospital and the likelihood to recommend the hospital.

Question 2: Is there a relationship between the individual components of PFCC (individual item scores) and the overall hospital rating and the likelihood to recommend rating (HCAHPS survey)? Gamma correlation coefficient was also used to address this question.



Table 4

*Gamma Correlation of the Relationship Between PFCC and Overall Rating and Likelihood to Recommend*

|                                                      | N   | Overall Hospital Rating | N   | Would Recommend to Family/Friends |
|------------------------------------------------------|-----|-------------------------|-----|-----------------------------------|
| You and family able to participate in care decisions | 954 | .47**                   | 943 | .55**                             |
| Staff explained their roles in your care             | 953 | .68**                   | 943 | .69**                             |
| Staff supported your family                          | 937 | .66**                   | 927 | .70**                             |
| Choices respected to have family/friends present     | 938 | .64**                   | 928 | .57**                             |
| Respect for cultural/spiritual needs                 | 876 | .70**                   | 866 | .62**                             |
| PFCC total score                                     | 844 | .62**                   | 833 | .69**                             |

*Note.* \*\*p < .01.

Table 5

*Frequency and Distribution of PFCC (total score) and Overall Rating and Likelihood to*

*Recommend*

|                                |       | PFCC total |           |           |
|--------------------------------|-------|------------|-----------|-----------|
|                                |       | <18        | 18-20     | Total     |
|                                |       | N (%)      | N (%)     | N (%)     |
| <b>Overall Rating</b>          |       |            |           |           |
|                                | 0-8   | 71 (53)    | 86 (12)   | 157 (19)  |
|                                | 9-10  | 62 (47)    | 625 (88)  | 687 (81)  |
|                                | Total | 133 (100)  | 711 (100) | 844 (100) |
| <b>Likelihood to Recommend</b> |       |            |           |           |
|                                | 1-3   | 56 (42)    | 53 (8)    | 109 (13)  |
|                                | 4     | 78 (58)    | 646 (92)  | 724 (87)  |
|                                | Total | 134 (100)  | 699 (100) | 833 (100) |

Table 4 displays the data for each of the five questions asked regarding patient perceptions of PFCC and their relationship to the overall rating for the hospital as well as the likelihood to recommend the hospital to family and friends. Each correlation was significant at the  $p < .01$  level.

Strong positive correlations were noted for questions addressing how often respect was shown for cultural and spiritual needs ( $r = .70$ ); how often staff explained their roles in care ( $r = .68$ ); how often staff supported family during their healthcare experience ( $r = .66$ ); and how often staff respected the patients' choice to have family/ friends present ( $r = .64$ ) with the overall hospital rating. A moderate correlation was noted for the question addressing how often the patient and family were able to participate in decisions about their care ( $r = .47$ ) with the overall rating of the hospital.

Strong positive correlations were noted with each PFCC component question and whether or not the patient would recommend the hospital to family and friends. These correlations were as follows: how often staff supported family during this healthcare experience ( $r = .70$ ); how often staff explained their roles in care ( $r = .69$ ); how often the patients' family spiritual and cultural needs were respected ( $r = .62$ ); how often the staff respected the patients' choice to have family present ( $r = .57$ ); and how often the patient and their family were able to participate in decisions about their care ( $r = .55$ ). Support of the family and explanation of the role one plays in patient care were the strongest correlations noted. Therefore, this data also suggests a strong relationship between the respondents' perception of PFCC and their tendency to give high scores for the overall rating of the hospital and the likelihood to recommend the hospital.

Question 3: Is there a relationship between the perception of PFCC (total score on Press Ganey survey items) and the perception of care from nurses, care from doctors, hospital environment, and experiences in the hospital (HCAHPS component scores)? Gamma correlation coefficient was used to examine these relationships. Table 6 displays the data for each of the fourteen questions on the HCAHPS survey that asked patients about the care received and their experiences in the hospital and the relationship with the PFCC total score. Each correlation was significant at the  $p < .01$  level.

Strong positive correlations were noted with each question examined in the HCAHPS survey and the PFCC total score. Overall, the strongest correlations were noted with the care from nurses ( $r = .74$ ;  $r = .67$ ;  $r = .71$ ) versus the care from doctors ( $r = .69$ ;  $r = .64$ ;  $r = .66$ ) and the hospital environment ( $r = .50$ ;  $r = .54$ ) with only one exception, timely help after the call button was pressed ( $r = .56$ ). Also noted were the strong correlations with the PFCC total score and experiences in the hospital: timely help with bedpan/ bathroom needs ( $r = .65$ ), pain management ( $r = .65$ ;  $r = .76$ ), and new medication management ( $r = .70$ ;  $r = .61$ ). The (N) was lower for these domains of the HCAHPS survey as not all respondents in the sample had these experiences.

Hence, in general, there were strong positive correlations with the respondents' overall perception of the presence of patient- and family- centered care and care received during their hospitalization.

Question 4: Does perception of PFCC (total score on Press Ganey survey items), the overall rating of the hospital experience, and the likelihood to recommend the hospital

Table 6

*Gamma Correlation of Relationship Between PFCC (total score) and Care from Nurses, Care from Doctors, Hospital Environment and Hospital Experiences*

|                                         | PFCC total | N   |
|-----------------------------------------|------------|-----|
| <b>CARE FROM NURSES</b>                 |            |     |
| Nurse treats with courtesy and respect  | .74**      | 843 |
| Nurse listens carefully to you          | .67**      | 852 |
| Nurse explains so you can understand    | .71**      | 850 |
| Nurse help timely after call button     | .56**      | 854 |
| Total NURSE                             | .55**      | 854 |
| <b>CARE FROM DOCTORS</b>                |            |     |
| Doctor treats with courtesy and respect | .69**      | 848 |
| Doctor listens carefully to you         | .64**      | 850 |
| Doctor explains so you can understand   | .66**      | 849 |
| Total DOCTOR                            | .62**      | 851 |
| <b>HOSPITAL ENVIORNMENT</b>             |            |     |
| Room and bathroom kept clean            | .50**      | 844 |
| Quiet at night                          | .54**      | 847 |
| Total HOSPITAL ENVIORNMENT              | .53**      | 852 |
| <b>EXPERIENCE IN THE HOSPITAL</b>       |            |     |
| Timely help                             | .65**      | 534 |
| Pain was well controlled                | .65**      | 702 |
| Staff did all they could to manage pain | .76**      | 704 |
| Total PAIN                              | .67**      | 706 |
| New medicines explained                 | .70**      | 439 |
| New medicine side effects               | .61**      | 431 |
| Total MED                               | .58**      | 442 |

Note. \*\*  $p < .01$ .

(HCAHPS) vary based on respondent characteristics? The purpose of this question was to examine whether patient characteristics (age, gender, and race) or clinical characteristics (perceived health status) were related to high PFCC total scores (18-20), high the overall rating of the hospital (9 or 10) and the greatest likelihood to recommend the hospital (4) questions. Table 7 displays the frequency and percentage of respondents in the various subgroups (age, gender, race, perceived health status) that provided the highest ratings on these questions.

Age, in years, was categorized as 18-35 (the lower quartile), 68+ (the upper quartile) and 36-67 (the remaining age groups). Race was categorized as black or white as less than 5% of the study population were in other categories. Perceived health status was defined as “good health” for those who rated their health as good, very good, or excellent. Perceived health status was defined as “poor health” for those that ranked their health status as fair or poor.

Some differences were noted among the subgroups and their responses. Males gave the highest ratings for overall rating (82%) and likelihood to recommend (87%), while females (only slightly higher) rated highest on the PFCC total score (74%). Blacks gave slightly higher ratings on overall hospital rating (84%) and PFCC total score (75%), while blacks and whites gave the same rating for likelihood to recommend (87%). Those that were in the 68+ age group gave higher scores on overall hospital rating (83%) and likelihood to recommend (88%) while those 18-35 gave higher scores on PFCC total score (82%) and those 36-67 gave the lowest for the PFCC total score (69%). The likelihood to recommend category remained high across all age categories. Both males and females gave lower scores on the PFCC total score than the other top ratings. Blacks and whites also rated the PFCC total score lower than the other top ratings.

Table 7

*Percentage of Respondent Subgroups Reporting Highest Ratings for Overall Hospital Rating, Likelihood to Recommend and PFCC Total Score*

|                                | Overall Rating<br>(9-10)<br>N (%) | Definitely<br>Recommend<br>N (%) | PFCC<br>(total score 18-20)<br>N (%) |
|--------------------------------|-----------------------------------|----------------------------------|--------------------------------------|
| <b>Gender</b>                  |                                   |                                  |                                      |
| Male                           | 314 (82)                          | 304 (87)                         | 310 (72)                             |
| Female                         | 687 (80)                          | 670 (86)                         | 676 (74)                             |
| Total                          | 1001 (80)                         | 974 (86)                         | 986 (73)                             |
| <b>Race</b>                    |                                   |                                  |                                      |
| White                          | 578 (81)                          | 574 (87)                         | 575 (73)                             |
| Black                          | 317 (84)                          | 313 (87)                         | 322 (75)                             |
| Total                          | 895 (82)                          | 887 (87)                         | 897 (74)                             |
| <b>Age</b>                     |                                   |                                  |                                      |
| 18-35                          | 255 (76)                          | 251 (87)                         | 248 (82)                             |
| 36-67                          | 491 (81)                          | 478 (86)                         | 480 (69)                             |
| 68+                            | 255 (83)                          | 245 (88)                         | 258 (72)                             |
| Total                          | 1001 (80)                         | 974 (86)                         | 986 (73)                             |
| <b>Perceived Health Status</b> |                                   |                                  |                                      |
| Good                           | 700 (84)                          | 693 (89)                         | 704 (75)                             |
| Poor                           | 259 (77)                          | 255 (82)                         | 258 (69)                             |
| Total                          | 959 (82)                          | 948 (87)                         | 962 (73)                             |

Overall, those who perceive their health as poor gave the lowest scores on all of the categories: PFCC total score (69%), overall hospital rating (77%), and likelihood to recommend rating (82%). Since overall satisfaction was lower for those with perceived poor health, further investigation to assess whether perceived health status affected the other demographic variables was completed. Table 8 displays this data.

The most noteworthy findings displayed in the Table 8 are as follows: (1) the highest overall satisfaction among the three top ratings is observed in the 68+ age group with good health (90%); males in good health (88%); and blacks in good health (86%), (2) the highest proportion definitely recommending the hospital is noted in males with good health (92%), those in the 68+ age group with good health (92%), and blacks with good health, (3) the highest perception of PFCC was noted in the 18-35 age group with good health (82%) and the 18-35 age group with poor health (80%), (4) the lowest overall satisfaction was noted in males with poor health (71%) and those in the 68+ age group with poor health (74%), (5) the lowest proportion definitely recommending the hospital was noted in males with poor health (75%), blacks with poor health (79%), and those in the 35-67 age group with poor health (79%), and (6) the lowest perception of PFCC was observed in whites with poor health (66%), males with poor health (67%) and those in the 35-67 age group with poor health (67%). Therefore, this data suggests that respondent characteristics do have some impact on the likelihood that they will provide the highest rating for overall hospital rating, likelihood to recommend the hospital, and the PFCC total score.

Question 5: What variables are the best predictors that a patient is likely to give a high overall rating for their hospital experience? A forward stepwise logistic regression was performed to assess which of the possible 18 predictor variables provide a model for



Table 8

*Percentage of Respondent Subgroups Reporting Highest Ratings for Overall Hospital Rating, Likelihood to Recommend and PFCC Total Score by Health Status*

|                    | Overall Rating<br>(9-10)<br>N (%) | Definitely<br>Recommend<br>N (%) | PFCC<br>(total score 18-20)<br>N (%) |
|--------------------|-----------------------------------|----------------------------------|--------------------------------------|
| <b>GOOD HEALTH</b> |                                   |                                  |                                      |
| <b>Gender</b>      |                                   |                                  |                                      |
| Male               | 216 (88)                          | 211 (92)                         | 217 (74)                             |
| Female             | 484 (82)                          | 482 (87)                         | 487 (75)                             |
| Total              | 700 (84)                          | 693 (89)                         | 704 (75)                             |
| <b>Race</b>        |                                   |                                  |                                      |
| White              | 418 (83)                          | 415 (89)                         | 415 (76)                             |
| Black              | 228 (86)                          | 225 (90)                         | 233 (77)                             |
| Total              | 646 (84)                          | 640 (89)                         | 648 (76)                             |
| <b>Age</b>         |                                   |                                  |                                      |
| 18-35              | 223 (77)                          | 222 (86)                         | 220 (82)                             |
| 36-67              | 319 (85)                          | 316 (89)                         | 317 (70)                             |
| 68+                | 158 (90)                          | 155 (92)                         | 167 (74)                             |
| Total              | 700 (84)                          | 693 (89)                         | 704 (75)                             |
| <b>POOR HEALTH</b> |                                   |                                  |                                      |
| <b>Gender</b>      |                                   |                                  |                                      |
| Male               | 91 (71)                           | 89 (75)                          | 90 (67)                              |
| Female             | 168 (80)                          | 166 (85)                         | 168 (70)                             |
| Total              | 259 (77)                          | 255 (82)                         | 258 (69)                             |
| <b>Race</b>        |                                   |                                  |                                      |
| White              | 155 (76)                          | 153 (83)                         | 154 (66)                             |
| Black              | 86 (79)                           | 85 (79)                          | 86 (71)                              |
| Total              | 241 (77)                          | 238 (82)                         | 240 (67)                             |

Table 8

*Percentage of Respondent Subgroups Reporting Highest Ratings for Overall Hospital Rating,*

*Likelihood to Recommend and PFCC Total Score by Health Status (continued)*

|       | Overall Rating<br>(9-10)<br>N (%) | Definitely<br>Recommend<br>N (%) | PFCC<br>(total score 18-20)<br>N (%) |
|-------|-----------------------------------|----------------------------------|--------------------------------------|
| Age   |                                   |                                  |                                      |
| 18-35 | 25 (76)                           | 25 (88)                          | 25 (80)                              |
| 36-67 | 153 (79)                          | 151 (79)                         | 152 (67)                             |
| 68+   | 81 (74)                           | 79 (84)                          | 81 (68)                              |
| Total | 259 (77)                          | 255 (82)                         | 258 (69)                             |

predicting the likelihood that patients would provide a high overall hospital rating (9 or 10). Stepwise logistic regression was chosen for the model building process because there was no prior theoretical basis for determining which subset of the 18 variables to select first in the model building process. Hosmer and Lemeshow (2000) report that there has been a shift away from models such as stepwise procedures in which a preset computer package determines the order and number of variables for purposeful selection. However, this procedure was considered as a useful and effective data analysis tool as the outcome being studied is relatively new and the predictor variables and the association with the outcome is not well understood or documented in the literature. In such cases, most studies collect many possible variables and screen them for significant associations as an effective means to identify predictor variables.

For this analysis, following the advice of Hosmer and Lemeshow (2000), a probability to enter ( $P_e$ ) value of 0.15 was used. These 18 variables were selected because all of the HCAHPS variables (9), PFCC variables (5), age, and health were strongly related ( $p < .05$ ) to the outcome of a high overall hospital rating. Race and gender, although not strongly related to the outcome ( $p > .05$ ), were selected because of their potential relevance to the outcome in the multivariate model.

The model produced in this analysis consisted of 8 variables which resulted in a Nagelkerke R squared of .384. Thus, this model explained 38% of the variance in the overall hospital rating and correctly classified or predicted 87% of the cases. Odds ratios (OR) and the lower and upper limits of the 95% confidence interval (CI) are displayed for each variable in Table 9. Each variable in the model was significant at the  $p < .05$  level.

For those respondents that gave the highest overall rating for the hospital (versus those who gave lower overall ratings), they were: (1) three times more likely to have reported that the

Table 9

*Stepwise Logistic Regression for Predictors for Overall Hospital Rating*

| Variable                                         | Unadjusted OR<br>95% CI | Adjusted OR<br>95% CI |
|--------------------------------------------------|-------------------------|-----------------------|
| Nurse listens carefully to you                   | 9.67 [6.04, 15.47]      | 3.09 [1.71, 5.57]     |
| Staff explained roles                            | 6.78 [4.40, 10.43]      | 2.19 [1.19, 4.02]     |
| Choices respected to have family/friends present | 8.06 [4.84, 13.44]      | 2.07 [1.04, 4.13]     |
| Doctor listens carefully to you                  | 6.26 [3.88, 10.10]      | 1.98 [1.08, 3.64]     |
| Staff supported your family                      | 8.87 [5.68, 13.86]      | 1.93 [1.02, 3.65]     |
| Quiet at night                                   | 4.02 [2.67, 6.05]       | 1.81 [1.10, 3.00]     |
| Perceived Health Status                          | 1.55 [1.01, 2.37]       | 1.73 [1.01, 2.96]     |
| Age                                              | 1.02 [1.00, 1.03]       | 1.03 [1.02, 1.04]     |

nurse always listened carefully to them (OR = 3.09), (2) two times more likely to have reported that the staff always explained their roles in care (OR =2.19) and that their choices were respected to have family and friends present during care (OR = 2.07), (3) nearly 2 times more likely to have reported that the doctor always listened carefully to them (OR =1.98); that staff supported their family (OR=1.93); that it was quiet at night (OR=1.81); that their perceived their health status was good (OR=1.73), and (4) more likely to be older (OR=1.03).

Question 6: What variables are the best predictors that a patient is likely to recommend the hospital to family and friends? The same forward stepwise logistic regression analysis was performed to predict which variables provide a model for predicting the likelihood of the respondents definitely recommending the hospital to family and friends. The model produced in this analysis consisted of 6 variables which resulted in a Nagelkerke R squared of .383. This model explained 38% of the variance in the likelihood to recommend rating and correctly classified or predicted 91% of the cases. Odds ratios (OR) and the lower and upper limits of the 95% confidence interval (CI) are displayed for each variable in Table 10. Each variable was significant at the  $p<.05$  level.

For those respondents that would definitely recommend the hospital to family and friends (versus those that probably would or would not), they were: (1) nearly 4 times more likely to have reported that the nurse treated them with dignity and respect (OR=3.77), (2) three times more likely to report that the doctor listened carefully to them (OR=3.26), (3) nearly 2.5 times more likely to have reported that their room was quiet at night (OR=2.48) and that staff supported their family (OR=2.43), and (4) nearly two times more likely to have reported that the nurse explained things so that they could understand (OR=2.11) and that their perceived health status was good (OR=1.89).

Table 10

*Stepwise Logistic Regression for Predictors for Likelihood to Recommend Hospital*

| Variable                               | Unadjusted OR<br>95% CI | Adjusted OR<br>95% CI |
|----------------------------------------|-------------------------|-----------------------|
| Nurse treats with courtesy and respect | 14.58 [8.01, 26.54]     | 3.77 [1.77, 8.05]     |
| Doctor listens carefully to you        | 8.84 [5.26, 14.86]      | 3.26 [1.75, 6.05]     |
| Quiet at night                         | 4.86 [2.96, 7.97]       | 2.48 [1.35, 4.53]     |
| Staff supported your family            | 7.98 [4.85, 13.13]      | 2.43 [1.30, 4.53]     |
| Nurse explains so you can understand   | 7.27 [4.40, 12.02]      | 2.11 [1.09, 4.06]     |
| Perceived Health Status                | 2.08 [1.29, 3.39]       | 1.89 [1.05, 3.41]     |

### **Summary**

This chapter presented the findings of the study. Characteristics of the population studied and the instruments used were presented. An analysis of each of the research questions posited concluded the chapter.

## **CHAPTER FIVE DISCUSSION**

Evidence of quality is an important outcome in healthcare. Patient satisfaction, an outcome of care, is an important component of quality (Cleary et al., 1991; Jha et al., 2008; Kane et al., 1997; Yellen et al., 2002).

Patient- and family-centered care (PFCC) is a health care delivery model that aims to enhance partnerships with health care providers and patients and their families. These partnerships are believed to play a significant role in improving patient satisfaction, quality and safety, and retention rates of staff (ANCC, 2008; Klein, 2007; McCarthy, 2007; Meyers, 2008).

The purpose of this study was to examine relationships between patient satisfaction, as measured by HCAHPS, and the perception of patient- and family-centered care (PFCC), as measured by the Press Ganey tool. The implementation of both HCAHPS, to measure patient satisfaction, and PFCC are being recommended and/or required by major stakeholders such as the federal government, IHI, ANCC, IOM, and JCAHO (ANCC, 2008; Kirchheimer, 2007; McCarthy, 2007; NAPH, 2008; National Quality Forum, 2005). However, to date, no studies have been published that examine relationships between patient satisfaction, as measured by HCAHPS, and PFCC.

This chapter provides a summary of the significant findings of the study, a discussion of those findings, and a review of the study limitations. This chapter concludes with implications of the findings for practice, education, and future research.

### **Significant Findings and Discussion**

In this study, 81% of the respondents rated the hospital highly (9 or 10). Eighty-six percent (86%) said that they would definitely recommend the hospital to family and friends. This finding corresponds with Jenkinson et al.'s (2002) findings which suggest that historically



patient satisfaction scores tend to be very high which often makes it difficult to distinguish what variables actually have the most impact on overall satisfaction.

In this study, 88% of respondents that perceived that PFCC elements were present (gave the highest score on the PFCC total score [18-20]) also gave an overall rating of 9 or 10 for the hospital. Ninety-two percent (92%) of respondents that perceived that PFCC elements were present (gave the highest score on the PFCC total score) said that they would definitely recommend the hospital to family and friends. However, only 47% of those respondents whose perception indicated a lesser presence of PFCC elements (scored <18 on the PFCC total score) gave an overall rating of 9 or 10, while 58% of those respondents scoring less than 18 on the PFCC total score said that they would definitely recommend the hospital to family and friends.

Gamma correlation of the perception of PFCC and the overall rating and the likelihood to recommend rating revealed strong correlations with four questions and a moderate correlation with the question addressing the respondents' and their families abilities to participate in care decisions. These findings may lend support to the case studies by Klein (2007), McCarthy (2007), and Meyers (2008) which noted improved patient satisfaction scores on units in their hospitals that had implemented elements of PFCC.

Strong positive correlations between PFCC total score as well as individual components of PFCC on the Press Ganey survey were noted with the HCAHPS survey questions regarding overall rating of the hospital and likelihood to recommend as well as with the HCAHPS component scores regarding care from nurses, care from doctors, the hospital environment and experiences during hospitalization (timely help with bedpan/ bathroom needs, pain management, and new medication management). The Gamma correlation coefficient ( $r$ ) was .50 or greater on all correlations with the perception of PFCC and patient satisfaction with only one exception.

The correlation between the overall hospital rating (HCAHPS) and the ability of the respondent and their family to participate in care decisions (PFCC component) was  $r = .47$ , indicating only a moderate correlation. The strongest correlations were noted in domains in which nurses had the most influence: “care from nurses” and “experiences in the hospital”.

These findings support the work of Wagner and Bear (2008) who noted a clear link with nursing care and overall patient satisfaction. It also lends support to earlier foundational studies on patient satisfaction that confirmed relationships between patient satisfaction and nursing care (Abdellah & Levine, 1957; Donabedian, 1966; Risser, 1975).

Some variation to responses in the highest ratings were noted for: (1) the overall hospital rating, (2) the likelihood to recommend the hospital rating, and (3) the PFCC total score based on respondent characteristics (age, race, gender, and perceived health status). Males had the highest scores for overall rating (82%) and likelihood to recommend (87%), while females rated (only slightly higher than males) the highest PFCC total score (74%). Blacks gave slightly higher ratings on the overall hospital rating (84%) and PFCC total score (75%), while blacks and whites gave the same rating for likelihood to recommend (87%). Respondents in the 68+ and the 18-35 age groups had high levels of satisfaction with their hospitalization. Those 68+ gave higher scores for overall hospital rating (83%) and likelihood to recommend (88%) while those 18-35 (82%) gave higher scores for perceived patient- and family-centered care (PFCC total score). Those respondents 36-67 (69%) scored lowest for the PFCC total score. The likelihood to recommend category remained high across all age categories. Both males and females gave lower ratings for PFCC total score than for overall hospital rating and likelihood to recommend. Blacks and whites also gave lower ratings on the PFCC total score than the other top ratings. Overall, those who perceived their health as poor rated the hospital lower (only 77% scored a 9

or 10) and they were less likely to recommend the hospital when compared to respondents who rated their health as good. They also had a lower perception of the presence of PFCC during their hospitalization. Only 69% had high perceptions of PFCC compared to 75% of those respondents who rated their health as good.

In this study, age, gender, and perceived health status had an impact on respondents' ratings of the overall hospital rating, likelihood to recommend rating, and the PFCC total score. Older respondents and males seemed more likely to be satisfied overall. This finding is supported in previous studies (Cohen, 1996; Jenkinson et al., 2002; Quintana et al., 2006; Rahmqvist, 2001; Sitzia & Wood, 1997). However, perceived health status was the characteristic that seemed most important in this study. Greater differences in the percentage in ratings were noted for those who perceived their health as poor when compared to those who perceived their health as good. This finding was in contrast to the work of Jenkinson et al. (2002) but was supported by other research (Rahmqvist; Thi et al., 2002; Xiao & Barber, 2008).

Forward stepwise logistic regression assisted with providing models that predicted the likelihood that respondents would provide a high overall rating for the hospital and would definitely recommend the hospital to family and friends. The model for predicting a high hospital overall rating included the following eight variables that were drawn from the HCAHPS survey, the PFCC Press Ganey survey, and respondent (patient) characteristics: (1) nurse listened carefully, (2) staff explained their roles in care, (3) choices respected to have family/friends present, (4) doctor listened carefully, (5) staff supported family, (6) quiet at night, (7) good perceived health status, (8) age (older). The model for predicting that respondents would definitely recommend the hospital to family and friends included six variables: (1) nurse treats with dignity and respect, (2) doctor listened carefully, (3) quiet at night, (4) staff supported

family, (5) nurse explained things so could understand, and (6) good perceived health status. There were some similarities noted in the variables that predicted the scores on overall hospital rating and the likelihood to recommend rating. Both models included perceived health status, the doctor listening carefully, quiet at night, and staff support of family. Both models also included variables related to nursing care, although the specific variables were different. See Table 11 for comparisons in the two models.

These findings are supported by other researchers who state that when examining determinants of patient satisfaction that it is important to look not only at nursing care and patient demographics but to include the overall patient experience with their hospitalization; including respect, communication, physical environment, feelings about respect for culture, family support, and decision making abilities (Conway et al., 2006; Gerteis et al., 1993; Jenkinson et al., 2002; Wagner & Bear, 2008).

Kane's Outcomes Model that was adapted for this study provided structural support for designing the study and interpreting the study findings. Patient factors (age, race, gender) and clinical factors (perceived health status) interacted with the treatment factor (perception of PFCC implementation) to impact the outcome of overall patient satisfaction. The HCAHPS survey included four domains and two overall ratings that encompassed the factors noted above when examining overall patient satisfaction. In summary, this model served this study well in defining factors that impact overall satisfaction in the population studied.

### **Study Limitations**

A limitation of this study was the measure of perception of PFCC implementation, the Press Ganey tool. There was limited data to support validity and reliability for this tool and it has not been widely used or reported in the literature. This inhibits the ability to state that the

Table 11

*Comparison of Stepwise Logistic Regression for Overall Hospital Rating and Likelihood to*

*Recommend*

| Overall Hospital Rating               | Adjusted OR | Likelihood to Recommend             | Adjusted OR |
|---------------------------------------|-------------|-------------------------------------|-------------|
| Nurse listened carefully              | 3.09        | Nurse treated with dignity and      | 3.77        |
| Staff always explained their roles in | 2.19        | <b>Doctor listened carefully</b>    | 3.26        |
| Choices respected to have family/     | 2.07        | <b>Quiet at night</b>               | 2.48        |
| <b>Doctor listened carefully</b>      | 1.98        | <b>Staff supported family</b>       | 2.43        |
| <b>Staff supported family</b>         | 1.93        | Nurse explained things so they      | 2.11        |
| <b>Quiet at night</b>                 | 1.81        | <b>Perceived good health status</b> | 1.89        |
| <b>Perceived good health status</b>   | 1.73        |                                     |             |
| Older age                             | 1.03        |                                     |             |

results of this study were typical or generalizable. This tool also did not address the specific areas in the collaboration or information sharing components of PFCC. For example, no questions were asked of the respondents regarding facility design, the receipt of information in a timely fashion, their thoughts about policy and procedure, and the education of professionals. Therefore, a comprehensive review reflective of all key components of PFCC could not be obtained.

The study may have revealed more specifics if the survey responses were tied back to specific units in the hospital. Unfortunately, the respondents' answers are linked to the unit from which the patient was discharged. This may not be truly reflective of the patients' hospital stay if they encountered more than one unit while in the hospital.

Another limitation of this study was the time frame from which the sample was drawn. Due to constraints of time and finances, only one quarter of data was used, October-December, 2009. This quarter may not have been reflective of the general hospital population over time and overall satisfaction ratings. Including more quarters of data would have provided a much larger sample size and may have affected the findings.

For this study, data were examined for only one academic medical center in the southeastern United States. A multi-center study would have strengthened the ability to generalize results to other hospitals. Including other hospitals would have also increased the sample size and may have revealed additional or different relationships among the variables examined in this study.

## **Implications for Practice, Education, and Research**

### **Practice**

The findings from this study validated that hospital personnel including nurse, doctors, and staff have a significant impact on patient satisfaction. Respondents noted that the way staff treated them, communicated with them, and responded to them (and their families) and their needs affected the overall rating of the hospital and the likelihood to recommend the hospital rating. Nurses spend more time with patients than any other care giver in the hospital. Therefore, it is important for nurses to be mindful of their approach to patients and families as well as to the care they provide.

This study also revealed that overall scores on the domain of “experiences in the hospital” were lower than other scores on the patient satisfaction survey (HCAHPS). Included in this domain are items related to timely help with bedpan/ bathroom needs, managing pain, and education on new medications and side effects. While these items did not seem to affect the scores on the overall hospital rating or likelihood to recommend rating (they remained high), they remain important for a good outcome for the patient. Nurses need to explore opportunities to improve upon these specific items. Examples of this may include: (1) consulting with other disciplines (pharmacists, physicians, physical or occupational therapists) to design strategies focused on assessing, managing, and reassessing pain, (2) working with nursing assistants to strategize on ways to remove barriers related to assisting patients with elimination needs, and (3) working with discharge nurses or case managers to strategize about opportunities to educate patients on new medicines and their side effects prior to discharge.

Nurse leaders should also utilize strategies to educate nurses about the components of patient satisfaction scores for their units. Regular roundtables, huddles or rounding techniques

should be implemented to discuss patient satisfaction as it is a measure of quality. Quality experts note that what is measured and discussed is generally improved (IOM, 2001).

In this study, it was noted in general that males, those that are older (68+), and those that perceive their health status as good were more satisfied. Perhaps strategies that focus on populations such as women, those 18-67 years, and those who perceive their health status as poor may assist in improving satisfaction and quality. For example, those with poorer health may have a unique set of characteristics that are not captured by the surveys used in this study.

Additionally, those with poorer health may have longer lengths of stay, require more pain management, or be more dependent on nurses and staff compared to those in good health. More research specific to those in poorer health may reveal different relationships or highlight different practice strategies that could assist nurses in enhancing the satisfaction and quality of care specific to this group.

Finally, nurses need to incorporate strategies related to the key components of PFCC into the daily management of their patients. Nurse leaders should encourage staff to engage in bedside shift report which includes the patient and family. Hourly rounding to assess and address patient and family needs may address and enhance both PFCC and patient satisfaction.

### **Education**

Nurse educators should be aware of initiatives to improve quality of patient care. Many times gaps exist between what is taught in the classroom and what is operationalized at the patient care unit level. Assuring that new graduates are educated about quality and its measurement is important to facilitate improvement.

Educators should be informed about the Quality and Safety Education for Nurses (QSEN) national initiative funded by Robert Wood Johnson. This project aims to meet the challenges of



educating future nurses to insure that they have the knowledge, skills and attitudes to improve the quality and safety of health systems. Other aims of this initiative are to incorporate faculty development and to insure that quality and safety is integrated into curricula for schools of nursing (Quality and Safety Education for Nurses, 2010). As previously noted, patient satisfaction is an outcome of care and a measure of quality. Educating nurses about quality may assist in improving satisfaction which is an indicator of quality care.

Education regarding HCAHPS and PFCC are also important in addressing patient satisfaction and quality in schools of nursing curricula. Now that HCAHPS is a standardized tool that hospitals are required to use by the federal government, and PFCC is a health care delivery model that is recommended and/ or required, student nurses and faculty alike should be knowledgeable about these two concepts. Nurse educators need to focus not only on the didactic and clinical content related to physiological nursing care but also on techniques that will assist nurses in meeting psychosocial, cultural, and communication needs of patients and families.

### **Research**

Future studies examining the relationship of patient satisfaction using HCAHPS and PFCC should be designed to include other hospitals and at least six months of data. More data is likely to give a better representation of patient satisfaction as a measure of quality. A research design that allows for data to be linked back to the specific unit(s) where the patient received care rather than just the unit of discharge would permit the development and implementation of specific and focused strategies for improvement.

The nurse is the care provider who spends the most time with the patient and their family. If the nurse is not engaged in quality improvement strategies such as patient satisfaction or PFCC, improvement is not likely to happen or be sustainable. A qualitative study designed to

capture nurses' thoughts and perceptions about the elements of PFCC and patient satisfaction could educate nurse and hospital leaders regarding risk, benefits, and barriers perceived by nurses. What is learned from the stories of the nurses could assist leadership in developing plans to educate nurses, remove barriers, and to implement policies to attain the goal of successful implementation of PFCC and improvement of patient satisfaction.

This study found that there is a strong relationship between patient satisfaction and the perception of PFCC. Future research needs to focus on exploring this relationship further. Specifically, a study that includes not only perceptions but objective measures of PFCC is needed. Including variables such as the number of medical errors or staffing patterns, as measures of quality, as well as process measures such as interdisciplinary rounds that include family and contribute to the PFCC model of healthcare delivery are essential. Findings from this type of study would be a significant contribution to the current body of knowledge.

### **Summary**

This descriptive research study examined the relationship between patient satisfaction and patient and family-centered care in a tertiary care hospital. The study suggests that a supportive environment and positive communication provided by nurses, physicians and other staff leads to higher satisfaction with care. However, patients who rate their health less favorably tend to be less satisfied with their care when compared to patients who rate their health better.

This study provides a foundation for future studies which should focus on further exploration of this relationship. In particular, the inclusion of additional indicators of patient and family-centered care with a more diverse patient population is warranted so that clinicians, administrators, and educators can collaborate to insure that all patients receive high quality care that addresses their individual needs and preferences.

## REFERENCES

- Abdellah, F., & Levine, E. (1957). Developing a measure of patient and personnel satisfaction with nursing care. *Nursing Research* 5, 100-108.
- Academy Health. (2004). *Glossary of terms commonly used in healthcare*. Washington, DC: Author. Retrieved February 14, 2009, from <http://www.academyhealth.org/publications/glossary.pdf>
- American Association of Colleges of Nursing. (2006). *Position statement on nursing research*. Washington, DC: Author
- Agency for Healthcare Research and Quality. (2003). *HCAHPS three-state pilot study results*. Rockville, MD: Author
- American Nurses Credentialing Center. (2008). *Recognizing nursing excellence: Application manual. Magnet recognition program*. Silver Spring, MD: Author
- Barr, D. (2004). Race/ethnicity and patient satisfaction: Using the appropriate method to test for perceived differences in care. *Journal of General Internal Medicine*, 19(4), 937-943.
- Bruster, S., Jarman, B., Bosanquet, N., Weston, D., Erens, R., & Delbanco, T. (1994). National survey of hospital patients. *British Medical Journal*, 309, 1542-1546.
- Carmen, S., Teal, S., & Guzzetta, C. (2008). Development, testing, and national evaluation of a pediatric patient family centered care benchmarking survey. *Holistic Nursing Practice*, 22(2), 61-74.
- Castle, N., Brown, J., Hepner, K., & Hays, R. (2005). Review of literature on survey instruments used to collect data on hospital patients' perceptions of care. *Health Services Research*, 40(6), Part II, 1996-2017.

- Charmel, P., & Frampton, S. (2008, March). Building the business case for patient-centered care. *Healthcare Financial Management*, 80-85.
- Cleary, P., Edgman-Levitan, S., Roberts, M., Moloney, T., McMullen, W., Walker, J., & Delbanco, T. (1991). Patients evaluate their hospital care: A national survey. *Health Affairs*, 10(4), 254-267.
- Cohen, G. (1996). Age and health status in a patient satisfaction survey. *Social Science and Medicine*, 42(7), 1085-1093.
- Conway, J., Johnson, B., Edgman-Levitan, S., Schlucter, J., Ford, D., Sodomka, P., & Simmons, L. (2006, June). *Partnering with patients and families to design a patient- and family-centered health care system: A roadmap to the future. A work in progress*. Institute for Family-Centered Care and Institute for Healthcare Improvement. Retrieved March 10, 2008, from <http://www.familycenteredcare.org/pdf/Roadmap.pdf>
- Donabedian, A. (1966). Evaluating the quality of medical care. *The Millbank Memorial Fund Quarterly*, 44(3), 166-203.
- Donabedian, A. (1988). The quality of care: how can it be assessed? *Journal of the American Medical Association*, 260, 1743-1748.
- Dowling, J., Vender, J, Guilianelli, S., & Wang, B. (2005). A model of family-centered care and satisfaction predictors. *Chest*, 128, 81S-92S.
- Drain, M., & Clark, P. (2004, July/ August). Measuring experience from the patient's perspective: Implications for national initiatives. *Journal for Health Care Quality Online*, W4-16. Retrieved July 20, 2009, from [http://www.nahq.org/journal/ce/article.html?article\\_id=215](http://www.nahq.org/journal/ce/article.html?article_id=215)

- Frampton, S., Gilpin, L., & Charmel, P. (2003). *Putting patients first: Designing and practicing patient-centered care*. San Francisco: Jossey- Bass.
- Garcia, C. (2007, March). Satisfaction measurement of patient-and family-centered care: A progress report [PowerPoint slides]. Retrieved May 30, 2009, from [https://www.uhc.edu/docs/003721413\\_RedesignCareGarcia.pdf](https://www.uhc.edu/docs/003721413_RedesignCareGarcia.pdf)
- Gerteis, M., Edgman-Levitan, S., Daley, J., & Delbanco, T. (1993). *Through the patient's eyes: Understanding and promoting patient-centered care*. San Francisco: Jossey-Bass.
- Goldstein, E., Farquhar, M., Crofton, C., Darby, C., & Garfinkel, S. (2005). Measuring hospital care from the patients' perspective: An overview of the CAHPS hospital survey development process. *Health Research and Educational Trust, DOI: 10.1111/j.1475-6773.2005.00477.x*, 1977-1995.
- HCAHPS on-line. Centers for Medicare & Medicaid Services, Baltimore, MD. Retrieved November 22, 2009, from <http://www.hcahponline.org>
- Hill, T., & Lewicki, P. (2006). *Statistics methods and applications*. Tulsa, OK: StatSoft, Inc.
- Hobbs, J. (2009). A dimensional analysis of patient-centered care. *Nursing Research*, 58(1), 52-62.
- Hosmer, D., & Lemeshow, S. (2000). *Applied logistic regression* (2<sup>nd</sup> ed.). New York: John Wiley & Sons, Inc.
- Institute for Family Centered Care. (2008). Retrieved March 17, 2008, from <http://www.familycenteredcare.org/faq.html>
- Institute of Medicine. (1999). *To err is human: Building a safer health system*. The National Academies Press. Retrieved November 6, 2008, from <http://www.iom.edu/Object.File/Master/4/117/ToErr-8pager.pdf>

- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21<sup>st</sup> century*. Washington, DC: National Academy Press.
- Institute of Medicine. (2003). *Unequal treatment: Confronting racial and ethnic disparities in health care*. Washington, DC: National Academy Press. Retrieved October 20, 2009, from <http://www.nap.edu/catalog/10260.html>
- Jenkinson, C., Coulter, A., Bruster, S., Richards, N., & Chandola, T. (2002). Patients' experiences and satisfaction with health care: Results of a questionnaire study of specific aspects of care. *Quality and Safety in Health Care, 11*, 335-339.
- Jha, K., Orav, E., Zheng, J., & Epstein, A. (2008). Patients' perceptions of hospital care in the United States. *New England Journal of Medicine, 359*(18), 1921-1931.
- Kaiser Family Foundation. (2003, April). *Women, work, and family health: A balancing act*. Retrieved October 18, 2009, from [www.kff.org/womenshealth/upload/Women-Work-and-Family-Health-A-Balancing-Act.pdf](http://www.kff.org/womenshealth/upload/Women-Work-and-Family-Health-A-Balancing-Act.pdf)
- Kane, R. (1997). *Understanding health outcomes research*. Gaithersburg, Maryland: Aspen Publishers, Inc.
- Kane, R. (Ed.). (2006). *Understanding health outcomes research* (2<sup>nd</sup> ed.). Boston: Jones and Bartlett Publishers.
- Kane, R., Maciejewski, M., & Finch, M. (1997). The relationship of patient satisfaction with care and clinical outcomes. *Medical Care, 359*(7), 714-730.
- Keller, S., O'Malley, A., Hays, R., Matthew, R., Zaslavsky, A., Hepner, K., & Cleary, P. (2005). Methods used to streamline the CAHPS hospital survey. *Health Research and Educational Trust, DOI:10.1111/j.1475-6773.2005.00478.x*, 2057-2077

- Kirchheimer, B. (2007, July 23). The patient's perspective. *Modern Healthcare*, 26-30.
- Klein, S. (2007, March 15). *Quality matters: Patient-centered care*. Retrieved March 24, 2008, from  
[http://www.commonwealthfund.org/publications/publications\\_show.htm?doc\\_id=468284](http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=468284)
- McCarthy, D. (2007, March 19). *Case study: Achieving a culture of patient-and family-centered care at Bronson Methodist Hospital*. Retrieved March 25, 2008, from  
[http://www.commonwealthfund.org/innovations/innovation\\_show.htm?doc\\_id=470043](http://www.commonwealthfund.org/innovations/innovation_show.htm?doc_id=470043)
- McGlynn, E., Asch, S., Adams, J., Keesey, J., Hicks, J., DeCristofaro, A., & Kerr, E. (2003). The quality of health care delivered to adults in the United States. *New England Journal of Medicine*, 348(26), 2635-2645.
- Meyers, S. (2008, February 25). *Patient- & family-centered care improves Florida ICUs*. Retrieved March 24, 2008, from  
<http://include.nurse.com/apps/pbcs.dll/article?AID=/20080225/PED02/302260015>
- National Association of Public Hospitals and Health Systems. (2008). *HCAHPS survey: Patients' perspectives of care*. Retrieved February 1, 2009, from  
[www.naph.org/naph/HCAHPSBrief.pdf](http://www.naph.org/naph/HCAHPSBrief.pdf)
- National Quality Forum. (2005). *Standardizing a measure of patient perspectives of hospital care*. Washington, DC: Author.
- Polit, D., & Beck, C. (2008). *Nursing research: Principles and methods* (8<sup>th</sup> ed.). Philadelphia: Lippincott, Williams, and Wilkins.
- Ponte, P., & Peterson, K. (2008). A patient- and family-centered care model paves the way for a culture of quality and safety. *Critical Care Nursing Clinics of North America*, 20, 451-464.

- Quality and Safety Education for Nurses. (2010). Retrieved March 14, 2010, from [http://www.qsen.org/about\\_qsen.php](http://www.qsen.org/about_qsen.php)
- Quintana, J., Gonzalez, N., Bilbao, A., Aizpuru, F., Escobar, A., Esteban, C., San-Sebastian, J., De-la-Sierra, E., & Thompson, A. (2006). Predictors of patient satisfaction with hospital care. *BMC Health Services Research*, 6(102), DOI:10.1186/1472-6963-6-102. Retrieved December, 15, 2009, from <http://www.biomedcentral.com/1472-6963/6/102>
- Rahmqvist, M. (2001). Patient satisfaction in relation to age, health status and other background factors: A model for comparisons of care units. *International Journal for Quality in Health Care*, 13(5), 385-390.
- Risser, N. (1975). Development of an instrument to measure patient satisfaction with nurses and nursing care in the primary care settings. *Nursing Research*, 24, 45-52.
- Sahin, B., Yilmaz, F., & Lee, K. (2007). Factors affecting inpatient satisfaction: Structural equation modeling. *Journal of Medical Systems*, 31, 9-16.
- Sitzia, J. (1999). How valid and reliable are patient satisfaction data? An analysis of 195 studies. *International Journal for Quality in Health Care*, 11(4), 319-328.
- Sitzia, J., & Wood, N. (1997). Patient satisfaction: A review of issues and concepts. *Social Science and Medicine*, 45(12), 1829-1843.
- Thi, P., Briancon, S., Empereur, F., & Guillemin, F. (2002). Factors determining inpatient satisfaction with care. *Social Science & Medicine*, 54, 493-504.
- Tomlinson, J., & Ko, C. (2006). Patient satisfaction: An increasingly important measure of quality. *Annals of Surgical Oncology*, 13(6), 764-765.
- Wagner, D., & Bear, M. (2008). Patient satisfaction with nursing care: A concept analysis within a nursing framework. *Journal of Advanced Nursing*, 65(3), 692-701.



- Wharam, J., & Sulmasy, D. (2009). Improving the quality of health care: Who is responsible for what? *Journal of the American Medical Association, 301*(2), 215-217.
- Xiao, H., & Barber, J. (2008). The effect of perceived health status on patient satisfaction. *Value in Health, 11*(2), 719- 725.
- Yellen, E., Davis, G., & Ricard, R. (2002). The measurement of patient satisfaction. *Journal of Nursing Care Quality, 16*(4), 23-29.
- Young, G., Meterko, M., & Desai, K. (2000). Patient satisfaction with hospital care: Effects of demographic and institutional characteristics. *Medical Care, 38*(3), 325-334.

## Appendix A: Survey

### HCAHPS Inpatient – Core Survey

| <b>CARE FROM NURSES</b>            |                                                                                                                                                                            | <b>Scale</b>                   |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| H                                  | During this hospital stay, how often did nurses treat you with <u>courtesy and respect</u> ?                                                                               | Always – Never                 |
| H                                  | During this hospital stay, how often did nurses <u>listen carefully</u> to you?                                                                                            | Always – Never                 |
| H                                  | During this hospital stay, how often did nurses <u>explain things in a way you could understand</u> ?                                                                      | Always – Never                 |
| H                                  | During this hospital stay, after you pressed the call button, how often did you <u>get help as soon as you wanted it</u> ?                                                 | Always – Never                 |
| <b>CARE FROM DOCTORS</b>           |                                                                                                                                                                            | <b>Scale</b>                   |
| H                                  | During this hospital stay, how often did doctors treat you with <u>courtesy and respect</u> ?                                                                              | Always – Never                 |
| H                                  | During this hospital stay, how often did doctors <u>listen carefully</u> to you?                                                                                           | Always – Never                 |
| H                                  | During this hospital stay, how often did doctors <u>explain things in a way you could understand</u> ?                                                                     | Always – Never                 |
| <b>HOSPITAL ENVIRONMENT</b>        |                                                                                                                                                                            | <b>Scale</b>                   |
| H                                  | During this hospital stay, how often were your <u>room and bathroom kept clean</u> ?                                                                                       | Always – Never                 |
| H                                  | During this hospital stay, how often was the area around your room <u>quiet at night</u> ?                                                                                 | Always – Never                 |
| <b>EXPERIENCES IN THE HOSPITAL</b> |                                                                                                                                                                            | <b>Scale</b>                   |
| H                                  | During this hospital stay, did you need help from nurses or other hospital staff in getting to the bathroom or in using a bedpan?                                          | Yes – No                       |
| H                                  | How often did you <u>get help in getting to the bathroom or in using a bedpan</u> as soon as you wanted?                                                                   | Always – Never                 |
| H                                  | During this hospital stay, did you need medicine for pain?                                                                                                                 | Yes – No                       |
| H                                  | During this hospital stay, how often was your <u>pain well controlled</u> ?                                                                                                | Always – Never                 |
| H                                  | During this hospital stay, how often did the hospital staff <u>do everything they could to help you with your pain</u> ?                                                   | Always – Never                 |
| H                                  | During this hospital stay, were you given any medicine that you had not taken before?                                                                                      | Yes – No                       |
| H                                  | Before giving you any new medicine, how often did hospital staff <u>tell you what the medicine was for</u> ?                                                               | Always – Never                 |
| H                                  | Before giving you any new medicine, how often did hospital staff <u>describe possible side effects</u> in a way you could understand?                                      | Always – Never                 |
| <b>WHEN YOU LEFT THE HOSPITAL</b>  |                                                                                                                                                                            | <b>Scale</b>                   |
| H                                  | After you left the hospital, did you go directly to your own home, to someone else's home, or to another health facility?                                                  |                                |
| H                                  | During this hospital stay, did doctors, nurses, or other hospital staff <u>talk with you about whether you would have the help you needed when you left the hospital</u> ? | Yes – No                       |
| H                                  | Did you <u>get information in writing</u> about what symptoms or health problems to look out for after you left the hospital?                                              | Yes – No                       |
| <b>OVERALL RATING</b>              |                                                                                                                                                                            | <b>Scale</b>                   |
| H                                  | Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to <u>rate this hospital</u> ?       | 0 to 10                        |
| H                                  | Would you <u>recommend this hospital to your friends and family</u> ? Would you say definitely no, probably no, probably yes, or definitely yes.                           | Definitely Yes – Definitely No |
| <b>OPEN-ENDED QUESTIONS</b>        |                                                                                                                                                                            | <b>Scale</b>                   |
|                                    | Thinking of your hospital stay, what <u>one thing could the hospital have done better</u> ?                                                                                | --                             |
| <b>ABOUT YOU</b>                   |                                                                                                                                                                            | <b>Scale</b>                   |
| H                                  | In general, how would you rate your overall health?                                                                                                                        | --                             |
| H                                  | What is the highest grade or level of school that you have <u>completed</u> ?                                                                                              | --                             |
| H                                  | Are you of Spanish, Hispanic or Latino origin or descent?                                                                                                                  | --                             |
| H                                  | What is your race?                                                                                                                                                         | --                             |
| H                                  | What language do you <u>mainly</u> speak at home?                                                                                                                          | --                             |

H Original HCAHPS question

## **Appendix B: Patient- and Family- Centered Care Custom Question Set**

Developed by

The National Task Force on Patient- and Family-Centered Care Metrics

For the Press Ganey Survey

1. How often were you and your family able to participate in decisions about your care?
2. How often did staff explain their roles in your care?
3. How often did the staff support your family throughout your healthcare experience?
4. How often were your choices respected to have family members/ friends with you during your care?
5. How often did staff respect your family's cultural and spiritual needs?

## Appendix C: Institutional Review Board Approval Letter



**University and Medical Center Institutional Review Board**  
East Carolina University, 600 Moye Boulevard  
1L-09 Brody Medical Sciences Bldg. • Greenville, NC 27834  
Office 252-744-2914 • Fax 252-744-2284 • [www.ecu.edu/irb](http://www.ecu.edu/irb)  
Chair and Director of Biomedical IRB: L. Wiley Nifong, MD  
Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

---

February 8, 2010

Kimberly D. Crickmore, RN, MSN, PhD  
302 Silverleaf Court  
Greenville, NC 27834

RE: Exempt Certification  
UMCIRB# 10-0062  
Funding Source: unfunded

Title: The Relationship between Patient Satisfaction and Patient and Family Centered Care (PFCC)

Dear Ms. Crickmore:

On 2.5.10, the University & Medical Center Institutional Review Board (UMCIRB) determined that your research meets ECU requirements and federal exemption criterion #4 which includes research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. *NOTE: 1) This information must be existing on the date this IRB application is submitted. 2) The data collection tool may not have an identifier or code that links data to the source of the information.*

It is your responsibility to ensure that this research is conducted in the manner reported in your Internal Processing Form and Protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB Office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification Request at least 30 days before the end of the five year period.

Sincerely,

Chairperson, University & Medical Center Institutional Review Board