

**THE EFFECT OF PATIENT RACE UPON PHYSICIANS'
COLORECTAL CANCER SCREENING:**

**A RETROSPECTIVE MEDICAL RECORD REVIEW AND
PHYSICIAN PATTERN VARIABLE ANALYSIS**

By

Marie Leslie Borum

**B.A. June 1980, Princeton University
M.D. May 1985, UMDNJ – Robert Wood Johnson Medical School
M.P.H. May 1995, The George Washington University**

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**Dissertation Chairperson
David Schwandt, Ph.D.
Professor of Human Resource Development
The George Washington University**

**Committee Members
Andrea Casey, Ed.D.
Assistant Professor of Human Resource Development
The George Washington University**

**John F. Williams, M.D., Ed.D.
Provost, The George Washington University
Vice President, The George Washington University School of Medicine
and Health Sciences**

ABSTRACT OF DISSERTATION

The Effect of Patient Race upon Physicians' Colorectal Cancer Screening: A Retrospective Medical Record Review and Physician Pattern Variable Analysis

There is a significant disparity in the health status of African-Americans and whites in the United States. Studies have revealed that African-Americans have higher mortality rates from colorectal cancer than whites. Differences in colorectal cancer screening of African-Americans compared to whites may account for a proportion of the excess mortality. This study evaluated internal medicine resident physicians' colorectal cancer screening practices in African-American and white patients. Additionally, an analysis of physicians' pattern variable orientation was performed to determine if there was a relationship between physicians' orientation and adherence to colorectal cancer screening guidelines.

A retrospective review of medical records from January 2002 through March 2002 was conducted to assess internal medicine resident physicians' performance of colorectal cancer screening. Univariate analysis revealed that there were statistically significant differences in the rate at which physicians performed rectal examinations ($p=0.0039$), fecal occult blood testing ($p=0.0006$) and colonic examinations ($p<0.0001$) in African-American compared to white patients. Multivariate analysis, evaluating patient race, patient gender, patient age and physician gender, demonstrated that patient race was the only factor significant for not performing colorectal cancer screening tests.

Physicians' perspectives about the medical profession and the delivery of medical services were assessed by evaluating pattern variable orientations. Integrative, value and

motivational orientations of the physicians were determined by using semi-structured interviews. All of the physicians had a self-orientation (integrative pattern variable), a universalistic-achievement orientation (value pattern variables) and a specificity orientation (motivational pattern variable). However, the physicians differed in their affectivity-affective neutrality orientation (motivational pattern variable). All of the physicians who had an affective orientation toward their patients adhered to colorectal cancer screening recommendations. The physicians who expressed affective neutrality toward their patients did not adhere to colorectal cancer screening recommendations.

This study revealed significant differences in the performance of colorectal cancer screening in African-American compared to white patients. Additionally, physicians' pattern variable orientations correlated with adherence to practice guidelines. This study is important because it provides information about physician practice patterns. The results of this study can serve as the basis for the development of educational interventions for physicians that can improve health care delivery.

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CHAPTER 1

INTRODUCTION

Statement of the Problem

Physicians' health care delivery is an increasingly important aspect of research inquiry. Studies have suggested that the delivery of clinical services is dependent upon a variety of factors. Access to the medical services, availability of technology and physician practice patterns are major factors that can influence the delivery of health care. While access to medical services and availability of technology have been well studied components of health care in the United States (Angell, 1993; Hurowitz, 1993; Kaplan & Keil, 1993; Pappas, 1994; Anderson & Armstead, 1995; Mustard & Frohlich, 1995), physician practice patterns have only recently been the subject of research investigations (Wenneker & Epstein, 1989; Satariano, Swanson & Moll, 1992; Tunis, Bass, Klag & Steinberg, 1993; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein 1993; Johnson, Lee, Cook, Rouan, & Goldman, 1993; Phillips et al., 1996; Gornick, 1999, Neuhauser & Jean-Baptiste, 1999).

There is evidence that physician practice patterns may have a role in the differential delivery of health care services (Neuhauser & Jean-Baptiste, 1999). The impact of patient race upon the availability of health care services, receipt of medical care, and clinical outcomes has been increasingly evaluated. This racial disparity in health status is associated with substantial differences in morbidity and mortality. African-Americans have the poorest health status indicators of all ethnic groups in the United States. African-Americans have higher infant mortality rates and shorter life

expectancies than whites Americans. African-Americans also have higher rates of chronic conditions and higher death rates for heart disease, cancer and stroke than white Americans. For every major cancer site, African-Americans are less likely than white Americans to have localized cancer at the time of diagnosis and are more likely to die from the malignancy (Angell, 1993; Hurowitz, 1993; Kaplan & Keil, 1993; Pappas, Queen, Haden & Fisher, 1993; Pappas, 1994; Anderson & Armstead, 1995; Mustard & Frohlich, 1995; National Center for Health Statistics, 1995).

Research has found lower health service utilization rates for African-Americans when compared to whites (Blendon, Aiken, Freeman & Corey, 1989; Escarce, Epstein, Colby & Schwarz, 1993; Lee, Gehlbach, Hasmer, Reti & Baker, 1997). Studies have revealed that there are racial differences in the access to medical care (Blendon, Aiken, Freeman & Corey, 1989; Weissman, Stern, Fielding & Epstein, 1991; Phillips et al, 1996), the receipt of preventive medical care (Gornick, 1999), the utilization of specific procedures (Wenneker & Epstein, 1989; Tunis, Bass, Klag & Steinberg, 1993; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein 1993; Phillips et al, 1996), the management of acute conditions (Johnson, Lee, Cook, Rouan, & Goldman, 1993; Phillips et al, 1996) and intervention for life-threatening conditions (Satariano, Swanson & Moll, 1992; Phillips et al, 1996). African-Americans are likely to be more severely ill when compared to whites at the time of hospital admission and for each level of illness severity African-Americans have shorter hospital stays which are not completely explained by the type of disease, operative procedures, age, gender, hospital type or insurance status (Buckle, Horn, Oates & Abbey, 1992; Phillips et al, 1996). Studies have revealed that African-Americans received less resource-intensive care and subspecialty consultation than other

patients (Phillips et al, 1996). At all income levels, African-Americans report less access to health care than white Americans, more dissatisfaction when hospitalized and are more likely than white Americans to believe that their hospitalizations were too short (Blendon, Aiken, Freeman & Corey, 1989; Phillips et al, 1996).

Cancer causes significant morbidity and mortality among adults in the United States. Despite the recent advances in cancer prevention, early detection and treatment, a significant number of individuals in the United States suffer from the effects of cancer, complications of treatment or succumb to the disease. African-Americans suffer disproportionately from malignancy with the highest age-adjusted incidence rate and the highest mortality rate of any racial or ethnic group in the nation (Clayton & Byrd, 1993).

African-Americans have higher mortality rates from colorectal cancer than whites. Research has suggested that the increased mortality rate is related to African-American patients having more advanced stages of disease at the time of diagnosis (McMahon Jr. et al, 1999; Marcella & Miller, 2001; Mokeba & Srinivasan, 2002). It has also been suggested that the racial differences in socioeconomic status and decreased access to screening services by African-Americans compared to whites are the basis for the excess mortality (Carethers, 1999; Hegarty, Burchett, Gold & Cohen, 2000; Mokeba & Srinivasan, 2002). However, research from the National Cancer Institute reported that the stage of colorectal cancer at the time of diagnosis accounted for only half of the excess colon cancer mortality observed among African-Americans (Mayberry et al, 1995). Socioeconomic factors, general health status, tumor characteristics and general patterns of treatment did not completely explain the survival disadvantage that is present

among African-Americans (Mayberry et al., 1995; Carethers, 1999; Dignam et al, 1999; Marcella & Miller, 2001).

Screening tests have been developed to detect colorectal cancer (U.S. Preventive Services Task Force, 1996; Bond, 2000; Borum 2001). Research has demonstrated that employing strategies to detect colorectal cancer has the potential to significantly reduce morbidity and mortality (Eddy et al, 1987; Lieberman, 1995; U.S. Preventive Care Task Force, 1996). Therefore, screening guidelines have been recommended by medical organizations (U.S. Preventive Care Task Force, 1996; Winawer et al, 1997; Burt, 2000; Rex, Johnson, Lieberman, Burt & Sonnenberg, 2000; American Cancer Society, 2001).

There have been a number of studies that have evaluated physicians' delivery of health care services (Wenneker & Epstein, 1989; Council on Ethical and Judicial Affairs of AMA, 1990; Tunis, Bass, Klag & Steinberg, 1993; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein 1993; Elixhauser, Harris & Coffey, 1994; McBean & Fornick, 1994; Mort, 1994; Giacomini, 1996; Phillips et al, 1996; Fiscella, Franks & Clancy, 1998; Gornick, 1999; Williams, 1999; Schroy 3rd et al, 2001; Zack, DiBaise, Quigley & Ray, 2001; Schneider, 2002). There have been fewer studies that have focussed upon colorectal cancer screening by physicians (Escarce, Epstein, Colby & Schwarz, 1993; Hoffman-Goetz, Breen & Meissner, 1998; Borum, 1999; McMahon Jr. et al 1999; Schroy 3rd et al, 2001; Zack, DiBaise, Quigley & Ray, 2001). There have been even less studies that have evaluated the potential effect of patient race upon colorectal cancer screening (Escarce, Epstein, Colby & Schwarz, 1993; Hoffman-Goetz, Breen & Meissner, 1998; Borum, 1999; McMahon Jr. et al, 1999; Hegarty, Burchett, Gold & Cohen, 2000). There are no published studies that have focused upon value and motivational orientations of

physicians in the delivery of colorectal cancer screening services in relation to patients' race.

Statement of Purpose

There is a need to study the potential impact of patient race upon physicians' delivery of preventive care services. The significant health disparities between African-American and white American adults support the need for investigations that evaluate the impact of patient race upon the receipt of health care services. This study evaluated physicians' colorectal cancer screening practices and the potential effect of patients' race upon the physicians' practices.

Potential Significance

This study is significant because it provides information about physician practice patterns and has the potential to contribute to an improved understanding of the impact of patient race upon health care delivery. An increase in the understanding of the impact of patient race upon physicians' adherence to colorectal cancer screening guidelines may allow for the identification of factors that influence medical care. Additionally, this study focuses upon the practices of internal medicine resident physicians which can provide information about the post-graduate education and training of physicians. An assessment of the practice patterns of internal medicine resident physicians can allow for the improvement of residency training and the establishment of practice patterns that can ensure the optimum delivery of medical care. The results of this study have potential

implications about clinical care and outcomes, residency training and issues related to institutional influence upon physicians' practice patterns.

Brief Literature Summary

Talcott Parsons' (1951) theory of action and the concept of pattern variable analysis in social interaction is the basis of the theoretical foundation for this investigation. Parsons developed system theories that provide an understanding of social phenomenon. In his seminal work, *The Structure of Social Action* (1937), Parsons described the 'voluntaristic theory of action'. In this theory, any social action involves decision-making by actors that is focused upon goal attainment and is constrained by ideas and circumstances (Parsons, 1937). An actor can be considered an individual, group or collective. It is this theory that was the basis for Parsons' subsequent study of social interactions.

Parson viewed a social system as a system that consists of multiple roles and complex interactive forces that are based upon individuals' orientations. In *The Social System* (1951), Parsons developed a model for evaluating human action and a detailed framework to aid in the analysis of a social system. Any action in a social system has significance to the actor. The integration of an actor's motivation with social standards can result in patterned interactions. In effort to simplify the complexity of social system analysis, Parsons suggested that the initial focus can be upon the unit act. It is the unit act that can provide a reference point from which the assessment of an actor's motivation and interactions can be conducted (Parsons, 1951; Deveureux, 1961; Parsons, 1965;

Bourricaud, 1981; Alexander, 1983; Holmwood 1983a, 1983b; Sciulli, 1986; Wearne, 1989).

The actor in a social system can be an individual, group or collective (Parsons, 1937). However, each actor is a composite of varying roles. The specific roles of interest for an individual actor can be extracted and analyzed separately from other roles. The patterned interactions that occur as a result of a specific role are a significant aspect of any social system. Fundamental to understanding an actor's role requires the identification of the actor's orientation. Analysis of an actor's orientation requires not only an appreciation of the actor's role, but also an understanding of his motivation within that role. It is the integration of an actor's motivation with the actor's role expectations and social standards that result in patterned interactions that are reflective of an actor's overall orientation (Parsons, 1951).

Parsons (1951) studied the unit act and the potential orientation patterns of an actor. These orientations are a limited set of alternatives from which the actor can choose. Interactions within a social system are determined by these chosen orientations. Parsons classified an actor's potential orientation into five independent dichotomies, called pattern variables. A pattern variable is defined as a set of alternatives from which an actor must choose to determine the meaning of a situation and the action that is taken (Parsons, 1951). The analysis of the social system should include an assessment of pattern variables (Parsons, 1951).

Pattern Variables

In *The Social System* (1951), Parson considered pattern variables as exhaustive in the possible orientations an actor can have in a given situation. These variables are core qualities of social interactions that reflect a defined set of options for an actor's orientation and patterns of interactions. The five basic pattern variables are:

- (1) Self vs. Collective Interest
- (2) Universalism vs. Particularism
- (3) Achievement vs. Ascription
- (4) Specificity vs. Diffuseness
- (5) Affectivity vs. Affective Neutrality

Additionally, pattern variables can be grouped based upon their relevance to an actor's value orientation or motivational orientation in a given social system. Parsons suggested the universalism-particularism and achievement-ascription pattern variables are closely related to value orientation compared to the other pattern variables. In contrast, specificity-diffuseness and affectivity-affective neutrality are closely related to an actor's motivational orientation. The pattern variable self-collective is embedded within the value and motivational orientation patterns and can, therefore, be considered a neutral or integrative pattern variable. The grouping of the pattern variables and the assessment of potential interrelationships between variables can provide the basis for a comprehensive assessment of any social interaction.

Race and Pattern Variable Analysis

There is evidence to suggest that race can have an impact on social interactions. Increased attention has been directed toward the influence of race within institutions (Purcell & Cavanagh, 1972; Alderfer, Alderfer, Tucker & Tucker, 1980; Davis & Watson, 1982; Landis, Hope & Day, 1984; Alderfer & Thomas 1988; Alderfer, Alderfer, Bell & Jones, 1992). Parsons' (1951) pattern variable analysis can provide a conceptual framework for the evaluation of the impact of patient race upon physician practice patterns. Identification of physicians' value and motivational orientations can provide insight into the factors that may influence practice patterns.

Parsons (1965) noted that race in the United States has been a moral issue that has resulted in fundamental changes within American society in effort to extend full rights to all citizens within the nation. Nevertheless, Parsons (1965) also noted that while substantial legislative and institutional changes supported the citizenship rights to African-Americans, there had been a substantial lag in the achievement of racial equality in health and health care. Physicians, as a professional group, may not be immune to the influence of a patient's race in their interactions.

Physicians as a Group

There have been increased efforts devoted to understanding groups within organizations (Lewicki and Alderfer, 1973; Berg, 1977; Alderfer, Alderfer, Tucker & Tucker, 1980). Critical to the understanding of any group, including professional groups, is the acceptance of a definition of a human group and the idea that the group can be studied as a unit. Alderfer (1977) defined a group as a collection of individuals who have

characteristics as a unit that identify and distinguish them from others. This definition can be applied to professional groups, supporting the study of physicians as a collective.

The medical system offers an excellent opportunity to illustrate the principal elements of the theories developed for social system analysis. It is a distinct social system that has strong professional traditions in which physicians, as a group, have defined roles and motivational processes that can be analyzed using a Parsonian perspective (Parsons, 1951, 1957).

The physician-patient interaction can be an excellent source of information for analysis. While the medical profession has been a source of study for Parsons (1951, 1957), a variety of components within this system have not been analyzed utilizing a Parsonian paradigm. The delivery of preventive care services by physicians has not been studied using a pattern variable analysis. Preventive care in the United States is an important component of medical services and deserves further study.

Physician-Patient Interaction Pattern

The expectations of physicians are generally limited to the delivery of health care and concerns related to patients' health (Parsons, 1957). The behavior of physicians is dependent upon orientation choices available to physicians and the expectations of the medical system. The socially sanctioned expectations in the medical system are fundamental to physician-patient relationships and are consistent with the functional requirements of the social system. The reputation of physicians' scientific training and technical competence is the foundation upon which physicians can be viewed as authorities from whom recommendations can be received (Parsons, 1957).

Parsons (1951) noted that an accepted arrangement of behavioral patterns and relationships can constitute an institution. As an institution, individual responsibility can be transferred to the collective based upon sanctioned expectations. In a medical system, the role of physicians has been institutionalized and the expectations and patterns of behavior of physicians are bounded within the institutional structure.

Mary Douglas' (1986) noted that any level of social grouping or interaction can represent an institution. The interaction between physicians and patients can be viewed as a regulated form of institutional patterns. While the relationships between physicians and patients are typically based upon an understood level of cooperation and mutual trust, (Douglas, 1986) variance in behavior can occur. Douglas noted that while a collective can influence the thought processes and behavioral patterns of its members, private interests and values can also influence social interactions (Douglas, 1986).

Douglas also noted that institutional expectations provide the boundaries for behavior. The more complete the encoding of expectations within an institution, the less likely there is deviance from behavior patterns (Douglas, 1986). This is also reflective in Andrew Schotter's (1981) suggestion that entropy-minimizing mechanisms store useful information that supports coordination within an institution (Schotter, 1981). While an institution has the ability to systematically direct behavior and perceptions, individuals within an institution have the power to alter behavior through the expression individual perspectives and social interaction (Douglas, 1986).

Barley and Tolbert (1997) suggested that institutions and actions are related and are a continuing, dynamic process. While institutions can offer boundaries and constraints for individuals, behaviors are open to modification. It is through choice and

action that individuals can deliberately adjust behavior and potentially modify institutions (Barley & Tolbert, 1997). However, Tolbert and Zucker (1996) noted that practices and behavioral patterns are not equally institutionalized. The variance in practices and behavior may depend upon how long an institution has existed and how encoded the expectations are for individuals (Tolbert & Zucker, 1996).

Individuals' patterns of behavior and social interaction can be reflective of institutional expectations. Parsons (1951) suggests that individuals' orientation can be assessed through pattern variable analysis. This type of analysis can offer a structure for evaluating social patterns of interaction (Parsons, 1951). Other theorists offer potential explanations for institutional patterns of interactions and variance in behavior. Coleman (1957) suggests that it is the social interaction that can influence behavior within a social group. Similarly, Giddens (1979) suggests that social arrangements and interactions within an institution can create and sustain the static and dynamic components of an institutional structure. Douglas (1986) notes that an institution can influence individuals' thought processes and behavioral patterns. However, individuals' private interests and values can also influence social interactions resulting behavioral patterns that may vary from institutional expectations (Douglas, 1986). Barley and Tolbert (1997) suggest that individuals can deliberately adjust personal behavior within an institutional structure. The variances in behavioral patterns and practices may result from differences in the degree of incorporation of institutional expectations (Tolbert & Zucker, 1996).

It is through Parsons' (1957) pattern variable analysis that physicians' practice patterns have been evaluated. Parsons studied physicians and their interaction with individuals with physical and mental illnesses (Parsons, 1957). This study extended the

evaluation of physician and patient interactions beyond an illness model, by assessing internal medicine resident physicians' orientations and the potential relationship with the delivery of colorectal cancer screening services.

Research Questions and Hypotheses

The study focused upon the delivery of preventive care services by evaluating colorectal cancer screening and the potential effect of patient race. The primary question addressed in this investigation is as noted.

- **Is there a relationship between internal medicine resident physicians' colorectal cancer screening practices and patient race?**

Hypothesis:

Physician practice patterns may be influenced by multiple factors. Patient race has been speculated to influence physicians' patterns of practice. It was hypothesized that there was a relationship between internal medicine resident physicians' adherence to colorectal cancer screening guidelines and patient race.

The specific questions that were addressed in this study to determine if there was a relationship between physicians' colorectal cancer screening practices and patient race are outlined.

- **What are the internal medicine resident physicians' colorectal cancer screening practices?**

Hypothesis:

It was hypothesized that internal medicine resident physicians inconsistently adhered to colorectal cancer screening guidelines.

- **Do internal medicine resident physicians have variance in integrative, value and motivational orientations that can be determined using a Parsonian pattern variable analysis?**

Hypothesis:

Physicians' integrative, value and motivational orientations can be analyzed by using the framework of Parsons' pattern variables. It was hypothesized that internal medicine resident physicians' have variance in pattern variable orientations that may correspond to colorectal cancer screening patterns.

Brief Summary of Methods

The investigation was a mixed methodology study that focused upon internal medicine resident physicians' delivery of colorectal cancer screening services. The mixture of quantitative and qualitative methods in this investigation took advantage of the strengths and minimized the weaknesses of each type of study method (Webb, Campbell, Schwartz & Sechrest, 1966; Smith, 1975; Denzin, 1978; Jick, 1979). An overview of this

study is outlined in Table 1 and is briefly discussed. Detailed discussion and justification of the methodology is offered in Chapter 3.

Table 1

<i>RESEARCH OVERVIEW</i>	
THE EFFECT OF PATIENT RACE UPON PHYSICIANS’ COLORECTAL CANCER SCREENING:	
A RETROSPECTIVE MEDICAL RECORD REVIEW AND PHYSICIAN PATTERN VARIABLE ANALYSIS	
Phase I:	Quantitative Component <i>Non-experimental observational</i>
	Site Selection
	Population Selection
	Data Collection
	Case form development
	Retrospective chart review
	Data entry
	Analysis
	Univariate and multivariate statistical analysis
Phase II:	Qualitative Component <i>Semi-structured Interviews</i>
	Site Selection
	Population Selection
	Data Collection
	Semi-structured Interviews
	Analysis
	Data interpretation

The quantitative (Phase I) and qualitative (Phase II) components of this study are discussed separately.

Quantitative Component

Phase I of this study used a non-experimental, observational design. The initial phase of this research determined the colorectal cancer screening practices of internal medicine resident physicians by conducting a retrospective medical record review. The initial question addressed in this study follows.

- **Is there a relationship between internal medicine resident physicians' colorectal cancer screening practices and patient race?**

The study was conducted in the ambulatory care center at The George Washington University Medical Center (GWUMC), Washington, D.C. A retrospective evaluation of the medical records of internal medicine resident physicians was conducted to determine adherence to colorectal cancer screening guidelines. While the patient population cared for by the internal medicine resident physicians was racially diverse, the majority of patients at GWUMC were African-American and white. This study was confined to an assessment of the colorectal cancer screening services delivered to African-American and white patients. Power analysis suggested that 47 medical records of African-American and white patients should be reviewed to detect a 30% difference in service delivery. (Appendix 1)

Consecutive medical records of patients meeting appropriate criterion (See Chapter 3) and seen between January 2002 and March 2002 were obtained. The medical records were reviewed for adherence to colorectal cancer screening guidelines. Colorectal cancer screening was considered to have been performed if there was documentation in the chart

of the performance of a rectal examination, fecal occult blood testing and endoscopic and/or radiologic evaluation of the colon as recommended by published guidelines. A case report form (Appendix 2) was developed and enabled systematic collection of patient demographics and information regarding colorectal cancer screening practices.

Microsoft Excel was used for data entry. Variables were coded to assist in the entry and subsequent analysis. Patient name and medical record number were eliminated from the database to ensure confidentiality. Data was entered on two separate occasions to decrease the potential for entry error.

Univariate and multivariate statistical analysis was conducted. Univariate analysis was performed to determine the correlation of patient race with the receipt of colorectal cancer screening services. Univariate analysis was also performed to determine if there was a relationship with other patient factors and the conduction of colorectal cancer screening. Statistical significance was assessed using contingency tables that generated p-values. Significance was set at $p < 0.05$. Multivariate analysis using logistic regression was used to evaluate the independent variables using SAS program. This analysis evaluated the relationship between patient race, patient gender, patient age and physician gender with the conduction of colorectal cancer screening.

Qualitative Component

Phase II of this investigation used semi-structured interviews of randomly selected internal medicine resident physicians' integrative, value and motivational orientations using Parsons' pattern variable analysis. The data was evaluated to determine

if there was a relationship between physician orientation and adherence to colorectal cancer screening guidelines. The primary question addressed in Phase II was as follows.

- **Do internal medicine resident physicians have variance in integrative, value and motivational orientations that can be determined using a Parsonian pattern variable analysis?**

Semi-structured interviews were conducted in the ambulatory care center at GWUMC of randomly selected internal medicine resident physicians. The interview selection process was based upon a review of the medical records evaluated in the quantitative phase of the study. The medical records were categorized based upon physician adherence to colorectal cancer screening guidelines and sub-categorized based upon patient race and patient gender. The physicians were randomly selected based upon medical record categorization. The investigator did not have knowledge about the physician's colorectal cancer screening practices during the interview or during the analysis of the interview data.

An interview guide was used to assist in obtaining information about physicians' integrative, value and motivational orientations within the context of their role as a physician and to provide a basis for comparing physician responses. A self-administered survey and pilot interviews were conducted to ensure that the interview guide would obtain information about integrative, value and motivational orientations. The subsequent interviews focused upon physicians' orientation toward their role as a physician and

toward their patients when delivering preventive care services, including colorectal cancer screening

Notes were taken during the interview that consisted primarily of major points, key terms and phrases with an attempt to capture the informants' own language. The interviews were also tape-recorded to ensure accuracy of the data collection and permit more attention to be directed toward the informant. Upon completion of the interview, observations about the interview were also recorded (Patton, 1990).

The interviews were transcribed. The notes that were taken about the major points, key terms and phrases focused attention toward specific areas of the tape-recorded interview. Review of the recordings and transcriptions allowed for the identification of the components of the interview that highlighted physicians' integrative, value and motivational orientations.

Data analysis involved the identification of patterns and integrating responses from the information offered during the interview. The content from each interview was grouped to correspond to the Parsonian pattern variables. Case analysis was followed by cross-case analysis. Interpretation of the data identified consistent patterns of orientation that existed among the physicians. Subsequent saturation leading to redundancy suggested that the categorization scheme was sound (Patton, 1990). A second reviewer evaluated the data and confirmed the accuracy of the identified themes and categorization.

Delimitations

While the investigation evaluated physicians' colorectal cancer screening practices and the effect of patient race upon the receipt of health care services, there were delimitations inherent in the methodology. The delimitations of Phase I (quantitative) and Phase II (qualitative) are outlined.

Phase I: Quantitative Component

This study evaluated physicians' colorectal cancer screening practices and the effect of patient race. The results are a reflection of physicians who are receiving postgraduate education in the field of internal medicine. Information obtained from this physician population may not be representative of all physicians who deliver preventive care. Generalizing the results of this study outside this physician population may not be appropriate.

Colorectal cancer screening was selected as the preventive health care issue to be explored because there are published and accepted guidelines. However, the delivery of colorectal cancer screening services may not be reflective of the delivery of other types of health care services.

Phase II: Qualitative Component

Physicians' perspective on medicine and health care delivery was evaluated by assessing physicians' integrative, value and motivational orientations using Parsonian pattern variable analysis. However, this analysis may not reflect all of the physician factors that can influence health care delivery. In addition, pattern variable orientations

of internal medicine resident physicians may not be representative of all physicians who deliver preventive care. Generalizing results beyond this physician population may not be appropriate.

Limitations

There are limitations inherent in the methods utilized in this study. The potential limitations of both Phase I (quantitative) and Phase II (qualitative) of this study are outlined.

Phase I: Quantitative Component

A retrospective chart review is a method for obtaining information regarding physician health care delivery patterns. This methodology is potentially limited because it cannot identify verbal recommendations offered by physicians to their patients. However, a review of internal medicine resident physicians' medical records was selected for this study because the resident physicians were required to document all recommendations and preventive care services delivered to the patient. In addition, the use of a retrospective medical record review is considered a legitimate method for evaluating physician practice patterns (Abramson, 1990; Thomas, Studdert & Brennan, 2002).

Phase II: Qualitative Component

Interpretation of the data is dependent upon the breadth of information obtained through the interviewing technique. Different interviewing techniques can be used to

obtain qualitative data. This study utilized semi-structured interviews to obtain information regarding physicians' pattern variable orientations. Semi-structured interviews can be criticized for limiting the breadth of information obtained. However, this interviewing method focussed the data collection on the issues of interest.

Human Subjects

The George Washington University Medical Center has an institutional review board (IRB) that oversees research. This proposal was submitted to the IRB to ensure acceptability within the institution. Confidentiality was maintained of all of the participants, including the patients whose medical records were reviewed and the internal medicine resident physicians.

Patient confidentiality was maintained by coding the medical records. Upon completion of the database development and analysis, the information that identified the patient was destroyed. Data was retained using only the codes to ensure patient confidentiality. Physician confidentiality was maintained by coding the interview transcripts. Upon completion of the interview analysis, the interview tapes were destroyed and the transcripts were maintained only using the codes to ensure physician confidentiality.

Definitions

- Colorectal cancer:** Cancer of the large intestine and rectum
- Faculty physicians:** Physicians who have responsibility of educating and training resident physicians and who maintain a clinical practice at the university
- Medical record:** Patient's health care information maintained by clinicians
- Post-graduate training:** Didactic and clinical experience in a structured educational environment obtained by individuals who have graduated medical school.
- Preventive Care:** Screening tests, counseling, immunizations and chemoprophylactic regimens for the avoidance of or early detection of disease
- Residency training:** Didactic and clinical experience in a structured educational environment obtained by individuals who have graduated medical school.
- Resident physicians:** Individuals who have completed medical school and are receiving supervised post-graduate training.
- Screening:** Standardized evaluation or test to identify individuals at risk for a disease or to detect the presence of a disease

The remainder of this dissertation is organized as follows. Chapter 2 provides a literature review that is the basis for the study. The chapter reviews issues related to racial disparities in health care, colorectal cancer screening and pattern variable analysis. Chapter 3 offers a detailed outline of the quantitative and qualitative methods used in this study. Chapter 4 discusses the results of Phase I, the retrospective medical record review, and Phase II, the semi-structured physician interviews. Chapter 5 reviews the results of the investigation as they relate to the existing literature. The chapter also discusses the clinical, residency training and institutional implications of the findings.

CHAPTER 2

LITERATURE REVIEW

Race and Health

There is a significant disparity in the health status of African-Americans and white adults in the United States (Clayton & Byrd, 2001; Braun, 2002). Substantial evidence has demonstrated that this disparity in health status is associated with increased morbidity and mortality in African-Americans (Petersen, 2002). African-Americans have the poorest health of all ethnic groups in the United States. African-Americans have higher infant mortality rates (Kvale, Cronk, Glysch & Aronson, 2000) and shorter life expectancies than whites (Woolhandler et al, 1985; US Department of Health and Human Services, 1991; National Center for Health Statistics, 1996; Williams, 1999). African-Americans have higher rates of chronic conditions, as well as, higher death rates from heart disease, cancer and stroke than white Americans. For every major cancer site, African-Americans are less likely than whites to have localized cancer at the time of diagnosis and are more likely to die from the malignancy (Woolhandler et al, 1985; US Department of Health and Human Services, 1991; Angell, 1993; Hurowitz, 1993; Pappas, Queen, Haden & Fisher, 1993; Pappas, 1994; Anderson & Armstead, 1995; Mustard & Frohlich, 1995; National Center for Health Statistics, 1996; Williams, 1999).

There is a growing body of literature that demonstrates significant differences in the health care between African-Americans and whites in the United States. Studies have demonstrated that African-Americans less often have regular sources of health care, have

fewer physician visits and lower total health-care expenditures (Kahn et al, 1994; Fiscella, Franks & Clancy, 1998; CDC, 1998). There is less utilization of medical interventions, referrals to subspecialty services and poorer quality hospital care in African-Americans (Ifudu, Dawood, Iofel, Valcourt & Friedman, 1999; Einbinder & Schulman, 2000; Mukamel, Murthy, & Weimer, 2000; Kressin & Petersen, 2001; Peterson, 2002).

There is evidence that suggests that the lower health service utilization rates for African-Americans when compared to whites may be reflective of differences in the access to health care (Blendon, Aiken, Freeman & Corey, 1989; Weissman, Stern, Fielding & Epstein, 1991; Escarce, Epstein, Colby & Schwarz, 1993; Phillips et al, 1996; Lee, Gehlbach, Hasmer, Reti & Baker, 1997; Williams, 1999; Schneider, Zaslavsky & Epstein, 2002). However, a study revealed that African-Americans less frequently received authorization for emergency department care even with health insurance that allowed them to access care (Lowe et al, 2001). In addition, when medical care is provided there have been reported differences in the receipt of some preventive medical care services (Fiscella, Franks & Clancy, 1998; Gornick, 1999; Zack, DiBaise, Quigley & Roy, 2001; Schneider, Zaslavsky & Epstein, 2002), the performance of specific procedures (Wenneker & Epstein, 1989; Council on Ethical and Judicial Affairs of AMA, 1990; Tunis, Bass, Klag & Steinberg, 1993; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein 1993; Elixhauser, Harris & Coffey, 1994; McBean & Fornick, 1994; Mort, 1994; Giacomini, 1996; Phillips et al, 1996; Williams, 1999), the management of acute conditions (Johnson, Lee, Cook, Rouan, & Goldman, 1993; Phillips et al, 1996) and intervention for life-threatening conditions (Satariano, Swanson & Moll, 1992; Phillips

et al, 1996). African-Americans are likely to be more severely ill when compared to whites at the time of hospital admission and for each level of illness severity African-Americans have shorter hospital stays (Buckle, Horn, Oates & Abbey, 1992; Williams, Zimmerman, Wagner, Hawkins & Knaus, 1995). The decreased hospital length of stay for African-Americans is not completely explained by type of disease, operative procedures, age, gender, hospital type or insurance status (Buckle, Horn, Oates & Abbey, 1992; Phillips et al, 1996). During hospitalizations, African-Americans receive less resource-intensive care and subspecialty consultation than other patients (Williams, Zimmerman, Wagner, Hawkins & Knaus, 1995; Phillips et al, 1996). At all income levels, African-Americans report less access to health care than whites, less satisfaction with community based care, more dissatisfaction when hospitalized and are more likely than whites to believe that their hospitalizations were too short (Hulka, Kupper, Daly, Cassel & Schoen, 1975; Blendon, Aiken, Freeman & Corey, 1989; Phillips et al, 1996).

There is a significant difference in the health status of African-Americans and whites reported for certain medical conditions. Considerable literature has been published related to cardiovascular disease and associated interventions. Differences in the health status and the receipt of care between African-Americans and whites have also been demonstrated for cerebrovascular disease, renal disease, transplantation, infection with the human immunodeficiency virus and cancer. Additionally, an increasing body of literature has reported disparities in the delivery of specific medical services between African-Americans and whites. There are differences that have been reported in the receipt of prenatal care, certain preventive care services, advanced surgical techniques, pain management and end-of-life care between African-Americans and whites. A review

of available data illustrates the distressing differences that exist in the health status of individuals in the United States based upon race.

Cardiovascular Disease

Numerous studies have reported racial differences in the performance of cardiac procedures in patients with evidence of coronary artery disease. While there have been studies that have revealed a limited relationship between race and the performance of cardiac catheterization and coronary artery angioplasty procedures (Taylor, Meyer, Morse, Pearson, 1997; Ferguson, Adams & Weinberger, 1998), there have been multiple studies that have repeatedly demonstrated that African-Americans are less likely to receive cardiovascular procedures when compared to whites (Oberman & Cutter, 1984; Maynard, Fisher, Passamani & Pullum, 1986; Gillum, 1987; Ford, Copper, Castaner, Simmons & Mar, 1989; Wenneker & Epstein, 1989; Hannan, Kilburn, O'Donnell, Lukacik & Shields, 1991; Maynard, et al, 1991; Cheitlin, 1992; Goldberg, Hartz, Jacobsen, Krakauer & Rimm, 1992; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein 1993; Whittle, Conigliaro, Good & Lofgren, 1993; Mirvis, Burns, Gaschen, Cloar & Graney, 1994; Blustein & Weitzman, 1995; Carlisle, Leake & Shapiro, 1995; Giles, Anda, Casper, Escabedo & Taylor, 1995; Peterson et al, 1997; Gregory, Rhoads, Wilson, O'Dowd & Kostis, 1999; Hannan et al, 1999; Daumit & Powe, 2001; Maynard, Wright, Every & Ritchie, 2001). Epidemiologic data reveals that African-Americans are more likely than whites to experience premature death and have poorer prognosis after acute myocardial infarction (Einbinder & Schulman, 2000; Ofili, 2001). African-Americans are much less likely to gain hospital admission for complaints of chest pain (Johnson, Lee,

Cook, Rouan, & Goldman, 1993). Multiple studies have shown that African-Americans are less likely to be referred for invasive cardiac procedures (Peterson, Wright, Daley, & Thibault, 1994; Einbinder & Schulman, 2000; Kressin & Petersen, 2001; Okelo et al, 2001). African-Americans are less likely than whites to receive cardiac catheterization, coronary artery angioplasty, coronary stent placement and cardiac artery bypass graft surgery (Maynard, Fisher, Passamani & Pullum, 1986; Gillum, 1987; Ford, Copper, Castaner, Simmons & Mar, 1989; Wenneker & Epstein, 1989; Maynard et al, 1991; Hannan, Kilburn, O'Donnell, Lukacik & Shields, 1991; Cheitlin, 1992; Goldberg, Hartz, Jacobsen, Krakauer & Rimm, 1992; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein 1993; Whittle, Conigliaro, Good & Lofgren, 1993; Mirvis, Burns, Gaschen, Cloar & Graney, 1994; Blustein & Weitzman, 1995; Carlisle, Leake & Shapiro, 1995; Giles, Anda, Casper, Escabedo & Taylor, 1995; Peterson et al, 1997; Gregory, Rhoads, Wilson, O'Dowd & Kostis, 1999; Hannan et al, 1999; Conigliaro et al, 2000; Daumit & Powe, 2001; Maynard, Wright, Every & Ritchie, 2001; Okelo et al, 2001) and are much more likely to have received less invasive, less costly, less diagnostically- definitive cardiac procedures (Blustein & Weitzman, 1995; Ford, Newman & Deosaransingh, 2000; Kressin & Petersen, 2001). Additionally, it has been demonstrated that even when racial minorities gain access to coronary artery bypass graft services, they are more likely to receive care from lower quality or less experienced providers (Mukamel, Murthy, & Weimer, 2000). Data has shown that African-Americans have persistently greater mortality rates from congestive heart failure when compared to whites in the United States (Ayanian, Weissman, Chasan-Taber & Epstein, 1999; Williams, Massing, Rosamond, Sorlie & Tyroler, 1999). Despite the recognition that there is a racial disparity

in the severity of and the mortality from congestive heart failure, studies have shown that African-Americans receive an overall lower quality of care than white patients with similar cardiac conditions (Ayanian, Weissman, Chasan-Taber & Epstein, 1999). It has also been shown that a patient's African-American race can significantly influence the medical care received and is associated with poorer clinical outcomes in hospitalized patients with cardiac disease (Philbin & DiSalvo, 1998).

Cerebrovascular Disease

Assessment of clinical care offered in the evaluation and management of other types of vascular diseases has also demonstrated differences in care based upon patient race. It has been speculated that there are a variety of factors, including socioeconomic status and access to care, that may contribute to the racial disparity (Horner, Oddone & Matchar, 1995). Nevertheless there is evidence that patient race, alone, may contribute to inequities in medical care for cerebrovascular disease (Oddone, Horner, Monger & Matchar, 1993; Guadagnoli, Ayanian, Gibbons, McNeil & LoGerfo, 1995; Evans & Kalra, 1999; Mitchell, Ballard, Matchar, Whisnant & Samsa, 2000). African-Americans with transient ischemic attacks are significantly less likely to receive noninvasive cerebrovascular testing, cerebral angiography or carotid endarterectomy compared to white patients (Oddone, Horner, Monger & Matchar, 1993; Evans & Kalra, 1999; Mitchell, Ballard, Matchar, Whisnant & Samsa, 2000). Peripheral vascular surgery is less likely to be performed on African-American patients (Guadagnoli, Ayanian, Gibbons, McNeil & LoGerfo, 1995). Neurologists were less likely to be the attending physician for African-American patients who have experienced a transient ischemic attack resulting in

the performance of less diagnostic testing (Mitchell, Ballard, Matchar, Whisnant & Samsa, 2000).

Renal Disease

African-Americans have a higher prevalence of renal disease compared to whites in the United States. Studies have revealed that African-Americans develop end stage renal disease at two to four times the rate of white Americans (Cowie et al, 1989; Lipton, Good, Mikhailov, Freels & Donoghue, 1999; Norris & Agodoa, 2002; Price & Crook, 2002). However, there is evidence that reveals that African-Americans have delayed referral to nephrologists. Even among patients with health insurance, delayed referral to nephrologists and for dialysis is more likely to occur in individuals who are African-American despite the higher rate of renal disease and the need for dialysis (Campbell, Evigman, Hosokawa & Van Stone, 1989; Owen, Chertow, Lazarus & Lowrie, 1998; Ifudu, Dawood, Iofel, Valcourt & Friedman, 1999; Roubicek et al, 2000; Gadegbeku, Freeman & Agodoa, 2002; Nzerue, Demissachew & Tucker, 2002). Additionally, studies have suggested that African-American patients are more likely to receive inadequate hemodialysis than white patients in the management of their end-stage renal disease (Owen, Szczech & Frankenfield, 2002).

Transplantation

There is a striking disparity in the performance of organ transplantation based upon patient race (Issacs et al 2000; Owen, Szczech & Frankenfield, 2002; Nair, Estace & Thuluvath, 2002). There is data that reveals that African-Americans are less likely than

whites to be referred for renal transplantation and it is more likely that white patients are referred for transplantation after the initiation of dialysis (Held, Pauly, Bovbjerg, Newmann & Salvatierra Jr., 1988; Kjellstrand, 1988; Soucie, Neylan & McClallan, 1992; Effers, 1995; Alexander & Sehgal, 1998; Ayanian, Cleary, Weissman & Epstein, 1999; Gadegebeku, Freeman & Agodoa, 2002; Owen, Szczech & Frankenfield, 2002). Despite Medicare financing of kidney transplantation, which has eliminated financial issues for care, African-Americans receive less renal transplantations (Held, Pauly, Bovbjerg, Newmann & Salvatierra Jr., 1988; Kjellstrand, 1988; Soucie, Neylan & McClallan, 1992; Gaylin et al, 1993; Effers, 1995; Alexander & Sehgal, 1998; Ayanian, Cleary, Weissman & Epstein, 1999) even after adjustment for sociodemographic factors, overall health status and co-existing illnesses (Soucie, Neylan & McClallan, 1992). The racial disparity in transplantation also exists for simultaneous pancreas-kidney transplantation (Issacs et al, 2000) and orthotopic liver transplantation (Nair Estace & Thuluvath, 2002).

Human Immunodeficiency Virus

Infection with the human immunodeficiency virus and the acquired immunodeficiency syndrome (AIDS) disproportionately affects racial minorities in the United States (Morbidity Mortality Weekly Report, 1991; Moore, Stanton, Gopalan & Chaisson, 1994). Studies have revealed that there are significant differences in the survival of African-American and white patients with AIDS. While differential access to health care may be a factor in the racial differences in mortality rates associated with the human immunodeficiency virus (Murrain, 1996), there is evidence that there is a

difference in care received by African-Americans (Easterbrook et al, 1991; Lagakos, Fischl, Stein, Lim & Volberding, 1991; Moore, Stanton, Gopalan & Chaisson, 1994).

Despite clinical recommendations for prescription drug therapy for patients who are infected with the human immunodeficiency virus, there are differences in patterns of prescription drug use based upon patient race. Studies have revealed that African-Americans are significantly less likely than whites to receive antiretroviral therapy or prophylaxis for opportunistic infections when compared to whites (Easterbrook et al, 1991; Lagakos, Fischl, Stein, Lim & Volberding, 1991; Moore, Stanton, Gopalan & Chaisson, 1994).

Cancer

Cancer causes significant morbidity and mortality in the United States. Despite the recent advances in cancer prevention, early detection and treatment, a significant number of individuals in the United States suffer from the effects cancer, complications of treatment or succumb to the disease. African-Americans suffer disproportionately from malignancy with the highest age-adjusted incidence rate and mortality rate of any racial or ethnic group in the United States (Clayton & Byrd, 1993; Centers for Disease Control and Prevention, 2002).

There are a disproportionate number of cancer deaths that occur among African-Americans when compared to whites. The racial disparities in the receipt of care are apparent in the delivery of definitive primary cancer care and adjuvant therapy. It has been reported that African-Americans are less likely to receive optimal care for cancer when compared to whites (Breen, Wesley, Merrill & Johnson, 1999; Bach et al, 2002;

Shavers & Brown, 2002). The treatment differences have been reported to be associated with an adverse impact on health care outcomes, more frequent recurrence rates, shorter disease-free survival and higher mortality (Breen, Wesley, Merrill & Johnson, 1999; Shavers & Brown, 2002). While socioeconomic status and co-existing medical illnesses have been reported to have a role in the rate of cancer death in African-American patients, there continues to be excess cancer deaths in African-Americans that have yet to be fully explained (Robbins, Whittemore & Thom, 2000; Bach et al, 2002). Research focusing upon cancer-related care and mortality has been specifically conducted for prostate, breast, endometrial and colorectal cancer. Review of the available data for these malignancies reveals significant disparities based upon patient race. Studies that have evaluated colorectal cancer and African-Americans will be discussed separately.

African-American men succumb to prostate cancer at higher rates when compared to white men with similar stage cancer. Clinically advanced prostate cancers were detected more frequently in African-Americans resulting in significantly worse prognoses (Robbins, Whittemore & Thom, 2000; Hoffman et al, 2001; Thompson, 2001; Morbidity Mortality Weekly Report, 2002).

African-American women present with more advanced disease and have significantly increased risk of death from breast cancer compared to white women (Breen, Wesley, Merrill & Johnson, 1999; Bibb, 2000; Morbidity Mortality Weekly Report, 2002). While there is evidence that socioeconomic status and access to health care contributes to increased breast cancer mortality (Bibb, 2000), the increased mortality rate from breast cancer in African-American women persists even when research studies have controlled for socioeconomic status and other potentially confounding factors

(Hunter et al, 1993; Wojcik, Spinks & Optenberg, 1998; Yood et al, 1999; Joslyn & West, 2000). Studies have revealed that there are differences in the treatment and interventions received for African-Americans compared to whites (Diehr et al, 1989; Breen, Wesley, Merrill & Johnson, 1999). Additionally, there is evidence that African-American women do not receive the minimum expected therapy for breast cancer as frequently as white women with similar stage disease (Breen Wesley, Merrill & Johnson, 1999). The differences in the treatment received for breast cancer have been reported to explain a substantial portion of the differences in the survival rates in African-American and white patients (Diehr et al, 1989; Breen, Wesley, Merrill & Johnson, 1999).

In a recent study that evaluated women with endometrial cancer, African-American women had significantly worse outcomes even after controlling for clinicopathologic and socioeconomic factors (Connell, Rotmensch, Waggoner & Mundt, 1999).

Delivery of Health Care Services

Pre-natal Care

Infant mortality is an important indicator of health in a population. African-Americans have significantly greater infant mortality rates compared to whites (Board of Trustees of AMA, 1995; Kvale, Cronk, Glysch & Aronson, 2000; Hogan, Njoroge, Durant & Ferre, 2001). Research has supported that African-American infant mortality is primarily a result of the quality of pre-natal care. African-American women are twice as likely to have limited prenatal care (Board of Trustees of AMA, 1995). Additionally, when prenatal health care is delivered, African-Americans have been reported to receive

lower quality care (Kogan, Kotelchuck & Johnson, 1993). The difference in the delivery of pre-natal care has been speculated to result in a higher rate of preterm delivery, greater infant mortality and excess maternal mortality (Hogan, Njoroge, Durant & Ferre, 2001).

Surgical Intervention

There is evidence that, in addition to cardiac surgery, other types of surgical intervention may not be performed as often on African-American patients as on white patients. Studies have demonstrated that African-American patients receive fewer cataract surgeries (Escarce, Epstein, Colby & Schwarz, 1993), hip arthroplasties (Giacomini, 1996) and total knee surgeries (Wilson, May & Kelly, 1994; Giacomini, 1996) than other patients. Additionally, the introduction of advanced surgical techniques for management of medical conditions can also differ based upon whether an individual is African-American or white. It has been shown that African-Americans are less likely than whites to receive minimally invasive, laparoscopic cholecystectomy procedures. The utilization of laparoscopic techniques typically results in decreased post-operative morbidity and decreased period of recovery. The differences in the rate of adoption of laparoscopic surgery for African-American patients does not appear related to co-existing medical disorders or other confounding factors (Arozullah et al, 1999).

Pain Management

African-American patients have been demonstrated to receive less analgesic medication for pain for both acute and chronic conditions (Anderson et al, 2000; Todd, Deaton, D'Adamo & Goe, 2000). African-American patients, compared to whites, with

isolated long bone fractures less frequently received analgesics in an emergency department. Evaluation of the physicians revealed that it was not a failure of physicians to recognize and assess pain, but a failure of physicians to administer adequate analgesic medications to African-American patients (Todd, Deaton, D'Adamo & Goe, 2000). Additionally, there was a racial disparity in the prescribing of analgesic medication in patients with pain associated with cancer. African-American patients report significantly higher levels of pain and limited pain relief from their prescribed medications when compared to white patients with similar conditions (Anderson et al, 2000).

Intensive Care Unit Intervention

An evaluation of intensive care unit intervention in African-American and white patients has been performed. In African-American patients, the intensive care unit length of stay was significantly shorter than in white patients and the first week of resource use was significantly lower. However, there was no significant difference in hospital mortality rates. The small, but significant differences in intensive care unit care was speculated to be an indication of undertreatment of African-American patients or the overtreatment of white patients (Williams, Zimmerman, Wagner, Hawkins & Knaus, 1995).

End-of-Life Care

While health care access, utilization of medical technology and referral to subspecialty care have documented significant differences between African-Americans and whites, there is also evidence that racial disparity exists in end-of-life care.

Literature reveals that African-Americans are less likely to discuss treatment preferences before death with their physicians, complete living wills or to designate a Durable Power of Attorney for health care (Borum, Lynn & Zhong, 2000; Hopp & Duffy, 2000). There are distinct differences between advanced care planning, end-of-life decision-making and physician involvement between African-American and white patients which have the potential to impact upon clinical care (Shepardson, Gordon, Irahim, Harper & Rosenthal, 1999; Hopp & Duffy, 2000).

Preventive Care

Preventive care is a critical component of health care in the United States. A number of studies have demonstrated that there are differences in the delivery of preventive care services between African-Americans and whites. While there may be a disparity in the ability of different populations to access health care (Blendon, Aiken, Freeman & Corey, 1989; Weissman, Stern, Fielding & Epstein, 1991; Phillips et al, 1996; Hueston & Hubbard, 2000), studies have evaluated preventive care delivery among individuals who have the ability to access health care. One study reported that African-American patients rated their physicians' health promotion practices higher than white patients in an equal access health care environment (Murray-Garcia, Selby, Schmittiel, Grumbach & Quesenberry Jr., 2000). However, studies that have evaluated specific preventive care practices have demonstrated the presence racial disparities in delivery of care.

African-Americans have been reported to receive inadequate smoking cessation counseling (Borum, 2000; Doescher, 2000), less mammography and (Escarce, Epstein,

Colby & Schwarz, 1993; Burns et al, 1996) less influenza vaccinations (Gornick et al, 1996; Gornick, 1999; Schneider, Zaslavsky & Epstein, 2001). While managed care has been associated with higher rates of influenza vaccination for African-Americans and whites, a racial disparity persists in the delivery of this influenza vaccination (Schneider, Cleary, Zaslavsky & Epstein, 2001).

Colorectal Cancer and African-Americans

Colorectal cancer causes significant morbidity and mortality in African-Americans. The colon cancer incidence is highest among African-Americans compared to any other ethnic groups in the United States. Colorectal cancer is more advanced at the time of diagnosis in African-Americans (McMahon Jr. et al, 1999; Greenlee, Hill-Harmon, Murray & Thun, 2001; Marcella & Miller, 2001, Mokeba & Srinivasan, 2002). Additionally, African-Americans have higher mortality rates from colorectal cancer with a significantly poorer 5-year survival rate when compared to whites (Carethers, 1999; McMahon Jr. et al, 1999; Mokeba & Srinivasan, 2002).

Research has suggested that the increased mortality rate from colorectal cancer in African-Americans can be the result of having more advanced stages of disease at the time of diagnosis (McMahon Jr. et al, 1999; Marcella & Miller, 2001, Mokeba & Srinivasan, 2002). However, research from the National Cancer Institute reported that the stage of colorectal cancer at the time of diagnosis accounted for only half of the excess colon cancer mortality observed among African-Americans (Mayberry et al., 1995). Other studies have shown that African-Americans have a greater risk of death from colorectal cancer, even at early stages (Marcella & Miller, 2001).

Research has also suggested that socioeconomic factors can account for approximately one-third of the excess deaths from colorectal cancer. The socioeconomic factors that have been reported to be related to the increased colorectal cancer morbidity and mortality in African-Americans include education, income and health insurance status (Hegarty, Burchett, Gold & Cohen, 2000). While socioeconomic factors can account for a portion of the excess colorectal cancer deaths in African-Americans, racial differences in mortality have not been completely explained by these factors (Carethers, 1999). Socioeconomic factors, general health status, tumor characteristics and general patterns of treatment have been studied and do not appear to completely explain the survival disadvantage that is present among African-Americans (Mayberry et al., 1995; Carethers, 1999; Dignam et al, 1999; Marcella & Miller, 2001).

In a study conducted in a population with equal health care access, it was reported that there were no racial differences in the treatment administered for colorectal cancer (Dominitz, Samsa, Landsman & Provenzale, 1998). In African-American and white patients who receive comparable therapy, differences in survival rates are reduced (Hodgson, Fuchs & Ayanian, 2001). In another study, differences in the survival of African-Americans with colorectal cancer did not appear to be related to differences in treatment, resulting in the speculation that there may be biological or non-cancer related conditions that may have a role in morbidity differences (Wudel Jr. et al., 2002). However, there is other evidence that suggests that there is a difference in the care received by African-Americans and whites with colorectal cancer and that the difference in care can affect survival. While the use of therapeutic interventions in African-Americans and whites is equivalent for the most severely ill patients with colorectal

cancer, a racial disparity in care received by those who are not as severely ill has been reported. In the less severely ill patients with colorectal cancer, African-Americans were less likely than whites to receive major therapeutic procedures. Among patients with a primary tumor with or without metastases, African-Americans were less likely to receive procedures directed at the treatment of the cancer (Ball & Elixhauser, 1996; Potosky, Harlan, Kaplan, Johnson & Lynch, 2002).

There has been speculation that colorectal cancer screening services in African-Americans compared to whites may be among the contributing factors for the excess colorectal cancer mortality (Mokeba & Srinivasan, 2002). However, there are limited studies that have evaluated colorectal cancer screening services in African-Americans (Escarcé, Epstein, Colby & Schwarz, 1993; Hoffman-Goetz, Breen, Meissner, 1998; Borum, 1999; McMahon Jr. et al, 1999; Hegarty, Burchett, Gold & Cohen, 2000). One study revealed that the performance of sigmoidoscopy for colorectal cancer screening is less frequently performed in African-American patients (Escarcé, Epstein, Colby & Schwarz, 1993). There have also been racial disparities reported in the performance of screening sigmoidoscopy unrelated to the patient's income and access to health care (Escarcé, Epstein, Colby & Schwarz, 1993; McMahon Jr. et al, 1999). In a study of geriatric Americans, there was a disproportionately lower use of cancer prevention services among older African-Americans compared to whites (Hegarty, Burchett, Gold & Cohen, 2000). Colonoscopy, the best screening technology available to evaluate the colon, has been reported to be performed less frequently in African-American patients compared to whites (McMahon Jr. et al, 1999). There is, however, one study that demonstrated no significant difference in the performance of colorectal cancer screening

between African-American and white patients. But, in this study a small patient population was evaluated and there was poor overall adherence to colorectal cancer screening guidelines by physicians. These factors had the potential to limit ability to identify the effect of patient race upon colorectal cancer screening (Borum, 1999).

Colorectal Cancer Screening

Colorectal cancer causes significant morbidity and mortality in the United States. It is the fourth most common form of cancer and has the second highest mortality rate in this nation. This malignancy accounts for ~135,000 new cancer cases and ~56,000 cancer deaths annually (Greenlee, Hill-Harmon, Murray & Thun, 2001). The predominant risk factor in most individuals who develop colorectal cancer in the United States is age ≥ 50 years. However, there are a variety of other risk factors that have been identified. These factors include a personal history of successfully resected colorectal cancer or precancerous adenomas, a family history of colorectal cancer or precancerous adenomas, inherited colorectal cancer syndromes and longstanding inflammatory bowel disease (Rustgi, 1994; Winawer & Shike, 1995).

Screening tests have been developed to detect colorectal cancer (U.S. Preventive Services Task Force, 1996; Bond, 2000; Borum, 2001). Research has demonstrated that employing strategies to detect colorectal cancer and precancerous lesions has the potential to significantly reduce morbidity and mortality by enabling early intervention (Eddy et al, 1987; Mandel et al, 1993; Lieberman, 1995; Hardcastle et al, 1996; Kronborg, Fenger, Olsen, Jorgensen & Sondergaard, 1996; U.S. Preventive Care Task Force, 1996). Various studies have determined that instituting sensitive and specific

colorectal cancer screening strategies is cost effective (Eddy et al, 1987; Lieberman, 1995). Therefore, screening guidelines have been recommended by medical organizations (U.S. Preventive Care Task Force, 1996; American College of Physicians, 1997; Winawer et al, 1997; Burt, 2000; Rex, Johnson, Lieberman, Burt & Sonnenberg, 2000; American Cancer Society, 2001). The available screening tests for colorectal cancer include digital rectal examinations, fecal occult blood tests, flexible sigmoidoscopy, colonoscopy and barium enema.

Digital Rectal Examination

The digital rectal examination has been a recommended technique for screening for colorectal cancer. However, this type of examination has limited sensitivity for colorectal cancer screening based upon the limited area that can be reached by the examining finger. It is not utilized as a sole technique for colorectal cancer screening, but is a component of the screening strategy. It is estimated that less than 10% of the colorectal cancers can be palpated by the rectal examination (US Preventive Care Task Force, 1996). However, the digital rectal examination can be used to obtain a stool specimen for fecal occult blood testing (Eisner & Lewis, 1991).

Fecal Occult Blood Tests

A number of studies have examined the potential benefit of fecal occult blood testing for the detection of colorectal cancer. The majority of the studies report that a large percentage of detected lesions are adenomas or early malignancies (US Preventive Care Task Force, 1996). There have been a number of prospective controlled trials that have evaluated the use of fecal occult blood tests for the detection of colonic lesions. These studies have revealed that the detection of fecal occult blood followed by a colonoscopy can result in identification and removal of a precancerous or cancerous lesion. Early detection and removal of a precancerous or cancerous lesion can result in a significant reduction in colorectal cancer mortality (Mandel et al, 1993; Selby, Friedman, Quesenberry, Jr. & Weiss, 1993; Winawer et al, 1993; Winawer & Bond, 1995; Hardcastle et al, 1996; Kronborg, Fenger, Olsen, Jorgensen & Sondergaard, 1996; Church, Ederer & Mandel, 1997). It is currently recommended that fecal occult blood testing be performed annually (U.S. Preventive Care Task Force, 1996; American College of Physicians, 1997; Winawer et al, 1997; Bond, 2000; Burt, 2000; Rex, Johnson, Lieberman, Burt & Sonnenberg, 2000; American Cancer Society, 2001).

Flexible Sigmoidoscopy

A flexible sigmoidoscope is a 60-cm fiberoptic instrument that can be used to evaluate the distal colon for precancerous and malignant lesions. Cohort and case-control studies have reported that the performance of a screening sigmoidoscopy can result in a 60-90% reduction in mortality from distal colorectal cancer (Gilbertsen VA & Nelms,

1978; Selby, Friedman, Quesenberry, Jr. & Weiss, 1992; Newcomb, Norfleet, Storer, Surawicz & Marcus, 1992; Muller & Sonnenberg, 1995). Current guidelines suggest that a screening sigmoidoscopy should be performed every 5 years (Bond, 2000).

Colonoscopy

Colonoscopy is a fiberoptic instrument that can be used to evaluate the entire colon. It has been increasingly advocated as a colorectal cancer screening strategy (Rex, Johnson, Lieberman, Burt & Sonnenberg, 2000; Borum, 2001; Swaroop & Larson, 2002). Screening studies have estimated the sensitivity rate of colonoscopy to be 95% (Lieberman & Smith, 1991). Additionally studies demonstrated that the proximal distribution of polyps in the colon support the use of a colonoscopy for colorectal cancer screening (Johnson et al, 1990; DiSario, Rouch, Mai, Pardy & Manne, 1991; Lieberman & Smith, 1991). A case control study that compared individuals who had colonoscopy and polyp removal at least every 3 years to individuals who declined intervention reported a significantly lower incidence and mortality rate associated with colorectal cancer (Winawer et al, 1993). Both cohort and case-control studies indicate that endoscopic polypectomy reduces the incidence and mortality from colorectal cancer (Gilbertsen & Nelms, 1978; Selby, Friedman, Quesenberry, Jr. & Weiss, 1992; Muller & Sonnenberg, 1995). The U.S. National Polyp Study provides supportive evidence that colonoscopic polypectomy is an effective secondary prevention of colorectal cancer (Winawer et al, 1993). The frequency for colonoscopic surveillance is based upon an individual's risk for colorectal cancer development (Bond, 2000; Borum, 2001).

Barium Enema

A barium enema, a radiologic test which uses a barium contrast material infused into the colon with an enema, has been used as a component of colorectal cancer screening strategy in individuals who decline or unable to undergo adequate endoscopic assessment of their colon. Utilization of this test as a screening technique is based upon a reported sensitivity of 80-85% and specificity of ~90% for identifying colonic lesions (Winawer et al, 1993). While there is limited data on screening individuals for colorectal cancer with barium enemas, this technique can be used as an alternate procedure for colorectal cancer screening (Winawer et al, 1993; Borum, 2001).

Recommendations for Colorectal Cancer Screening

Practice guidelines for colorectal cancer screening have been developed by a number of organizations. The U.S. Preventive Services Task Force, a consortium of medical societies, and the American Cancer Society are among the organizations that have developed recommendations for colorectal cancer screening (U.S. Preventive Care Task Force, 1996; American College of Physicians, 1997; Winawer et al, 1997; Burt, 2000; Rex, Johnson, Lieberman, Burt & Sonnenberg, 2000; American Cancer Society, 2001; Borum, 2001). In general, for the asymptomatic, average risk individual, colorectal cancer screening strategy includes annual digital rectal examination and an annual fecal occult blood with a flexible sigmoidoscopy every 5 years beginning at 50 years of age. Combining fecal occult blood testing and flexible sigmoidoscopy has been

reported to reduce colorectal cancer screening mortality by 43-50% (Winawer, Flehinger, Schottenfeld & Miller, 1993; Bond, 2000). Some organizations support the option of performing a barium enema every 5-10 years or performing a colonoscopy every 10 years (Winawer et al, 1997; American Cancer Society, 2001). The specific recommendations published by the American Cancer Society are offered in Appendix 3 (American Cancer Society, 2001). Screening recommendations may be altered if there is an increased risk for the development of colorectal cancer (Bond, 2000; Borum, 2001).

Physicians as a Group

Talcott Parsons, a foremost social theorist of the twentieth century, developed system theories that provide a foundation for understanding social interaction (Parsons, 1951). He also noted that the medical system offers an excellent opportunity to illustrate the principal elements of the theories developed for social system analysis. It is a distinct social system that has strong professional traditions in which there are defined roles. The role of the physician can be considered to be a specialized occupational role because of the complexity of knowledge and technical skill required for competency. The medical system offers a social structure with roles and motivational processes that can be analyzed using a Parsonian perspective (Parsons, 1951; Parsons, 1957).

The physician-patient interaction can provide excellent source of information for analysis. Parsons noted that while the physician-patient interaction consists of series of unit acts by individuals, physicians can be studied as a group (Parsons, 1951; Parsons, 1957). Although the complex social system of the medical profession was the source of study for Parsons (Parsons, 1951; Parsons, 1957), a variety of components within this

system have not been analyzed utilizing a Parsonian paradigm. The delivery of preventive care services by physicians has not been studied using a pattern variable analysis. The increasing emphasis on preventive care, as an important component of medical services suggests that this aspect of health care is deserving of study.

There have been increased efforts devoted to understanding groups within organizations (Lewicki and Alderfer, 1973, Berg, 1977, Alderfer, Alderfer, Tucker & Tucker, 1980). Critical to the understanding of any group, including professional groups, is the acceptance of a definition of a human group and the idea that the group can be studied as a unit. Alderfer (1977) defined a group as “a collection of individuals (1) who have significantly interdependent relations with each other; (2) who perceive themselves as a group by reliably distinguishing members from nonmembers; (3) whose group identity is recognized by nonmembers; (4) who, as group members acting alone or in concert, have significantly interdependent relations with other groups, and (5) whose roles in the group are therefore a function of expectations from themselves, from other group members, and from non-group members”. (Alderfer, 1977, p. 230) This definition can be applied to physicians adding support to the study of physicians as a collective.

Physicians within a health care system can be viewed as a collection of individuals who can be distinguished from others as a separate unit because of their unique education, technical training and responsibilities. They are easily identified and accepted as a separate group by themselves and by others who are not members of the group. The expectations and responsibilities of physicians require them to have interdependent relations with one another. Additionally, there is a differentiation of roles within a physicians group that allows for the effective completion of tasks, fulfillment of

responsibilities and the meeting of the expectations that physicians and nonphysicians have in relation to health care.

Physician-Patient Interaction Pattern

The expectations of physicians are generally limited to the delivery of health care and concerns related to patients' health (Parsons, 1957). The behavior of physicians is dependent upon orientation choices available to physicians and the expectations of the medical system. The socially sanctioned expectations in the medical system are fundamental to physician-patient relationships and are consistent with the functional requirements of the social system. The reputation of physicians' scientific training and technical competence is the foundation upon which physicians can be viewed as authorities from which interpretations and recommendations can be received (Parsons, 1957).

Parsons noted that an accepted arrangement of behavioral patterns and relationships can constitute an institution (Parsons, 1951). An institution can also transfer the responsibility of individuals to a collective based upon sanctioned expectations. An appreciation of an institution's ability to disseminate responsibility to a collective supports the legitimacy of studying physicians as a group. In a medical system, the role of physicians has been institutionalized. The expectations and patterns of behavior of physicians are bounded within the institutional structure. The behavioral forces that establish physicians' interaction within an institution are compatible with the functional requirements and expectations of the medical system.

Selected Theories of Social Interaction within Institutions

Talcott Parsons recognized that the social interaction between physician and patient can be based upon a pattern of behavior that is founded on mutual trust (Parsons, 1951). The functional requirements and expectations of the medical system assist in defining physicians' roles. The pattern of the interactions and relationships is a reflection of the professional orientations and can be considered an institution (Parsons, 1951).

There are a variety of explanations for physician behavior within the context of a medical system. Coleman, Katz & Menzel (1957) noted that the social relationships within a medical institutional structure influence decision-making and behavioral patterns. A study comparing the decisions of physicians within an integrated network and physicians practicing in more isolated clinical circumstances revealed that professional social interactions influenced behavior. This research reflected that the evaluation of individual physician behavior is an important unit of analysis. An assessment of physicians' attitudes and values can also add to the understanding of behavioral patterns (Coleman, Katz & Menzel, 1957).

Anthony Giddens (1984) focused on institutions as a product of human action. It was noted that there are static as well as dynamic components within an institutional structure. Action within an institution is a reflection of the social arrangements and the interactions of individuals. It was also suggested that the social interaction of individuals sustain the institution (Giddens, 1979, 1984).

Douglas (1986) noted that any level of social grouping or social interaction can represent an institution. The mutual interests of individuals within a group ensures institutional coordination and self-policing. While a collective can influence the thought

processes and behavioral patterns of its members, private interests and values can also influence social interactions (Douglas, 1986). Individual interests can, therefore, impact upon personal and institutional behavior.

The interaction between physicians and patients can be viewed as a regulated form of institutional patterns. While the relationships between physicians and patients are typically based upon an understood level of cooperation and mutual trust, (Douglas, 1986) variance in behavior can occur. While specific interactions between physicians and patients may be considered of limited scope, these interactions can legitimately reflect institutional patterns.

Douglas (1986) also noted that institutional expectations provide the boundaries for behavior. The more complete the encoding of expectations within an institution, the less likely there is deviance from behavior patterns. This is also reflected in Andrew Schotter's (1981) suggestion that entropy-minimizing mechanisms store useful information that supports coordination of interpersonal behavior within an institution. However, Douglas (1986) noted that while an institution has the ability to systematically direct behavior and perceptions, individuals within an institution have the power to alter behavior through the expression of individual perspectives and social interaction. Corroboration between institutional and individual perspectives can result in a balance that is reflected in individuals' behavior (Douglas, 1986).

Barley and Tolbert (1997) suggested that institutions and actions are related and are in a dynamic balance. While institutions can offer boundaries and constraints for individuals, behaviors are open to modification. It is through choice and action that individuals can deliberately adjust behavior and potentially modify institutions (Barley &

Tolbert, 1997). However, Tolbert and Zucker (1996) note that practices and behavioral patterns are not equally institutionalized. It is suggested that the variance in practices and behavior can depend upon the length of time that an institution has existed and the degree that expectations are encoded (Tolbert & Zucker, 1996).

However, it is through Parsons' (1957) pattern variable analysis that physicians' preventive care practice patterns will be evaluated. While Parsons previously studied physicians' interactions with their patients, the evaluation was limited to physicians caring for individuals with physical and mental illness (Parsons, 1957). This study extended the evaluation of physicians' interactions with patients, by assessing physicians' pattern variable orientations and the potential relationship of this orientation with the delivery of preventive care services.

Conceptual Framework

This study, an evaluation of physicians' colorectal cancer screening practices was based upon Talcott Parsons' theory of action and pattern variable analysis (Parsons, 1951). This research can contribute to the understanding of physicians' behavior and aid in the improvement of medical practice.

Theory of Action

Parsons (1937) conceptualized a scheme that aids in the systematic evaluation of any social action. In his seminal work, *The Structure of Social Action* (1937), Parsons described the 'voluntaristic theory of action'. In this theory, any social action involves decision-making by actors about goal attainment that is constrained by ideas and

circumstances (Parsons, 1937). This theory was the basis for Parsons' subsequent study of social interactions.

Parson (1951) viewed a social system as a distinct, independent entity that can be studied and analyzed. A social system was not viewed as simply a composite of individuals' actions, but consists of multiple roles and potentially complex interactive forces that were based upon individuals' motivations and orientations. In *The Social System* (1951), Parsons focused upon a model for evaluating human action and developed a detailed framework to aid in the analysis of a social system. Parsons noted that in any social system, there are multiple actors interacting with each other in a specific situation. The actors are motivated by a desire to optimize gratification. Any action in a social system has significance to the actor. The integration of an actor's motivation with value standards result in patterned interactions. In effort to simplify the complexity of social system analysis, Parsons (1951) suggested that the initial focus should be upon the unit act. It is the unit act that provides a fundamental reference point from which an assessment of an actor's integrative, value and motivational orientations can be conducted (Parsons, 1951; Deveureux, 1961; Parsons, 1965; Bourricaud, 1981; Alexander, 1983; Holmwood 1983a, 1983b; Sciulli, 1986; Wearne, 1989).

Parsons (1951) noted that any action within a social context can be evaluated as part of a unit act or a system of acts. Each unit act requires an 'actor'. The actor, an individual, group or collective, initiates an act by using processes that can be controlled. However, the act occurs in an environment in which the actor has no control. Rules, norms and values guide the orientation of the action (Parsons, 1937; Roche 1975). It is a series of unit acts and their interaction that can be the foundation of any social system.

Each actor is a composite of varying roles. Specific roles of an actor can be extracted and analyzed separately from other roles. Multiple actors having a specific role can be evaluated as a single group in reference to the specific role. The patterned interactions that occur as a result of a specific role are a significant aspect of a social system. Fundamental to understanding an actor's role requires the identification of the actor's orientation. Analysis of an actor's orientation requires an understanding of his motivation within that role. It is the integration of an actor's motivation with value standards that result in patterned interactions and reflect an actor's orientation (Parsons, 1951).

Parsons (1951) studied the unit act and the potential orientation patterns of an actor. These orientations are considered a limited set of alternatives from which the actor can choose. Interactions within a social system are determined by these chosen orientations. Parsons classified an actor's potential orientations into five independent dichotomies, called pattern variables. Parsons defined a pattern variable as a set of alternatives from which an actor must choose to determine the meaning of a situation and action that is taken (Parsons, 1951). The analysis of the social system should include an assessment of pattern variables (Parsons, 1951). A description of Parsons' pattern variables will be further discussed.

Pattern Variables

In *The Social System* (1951), Parson categorized pattern variables. These variables are exhaustive in the possible orientations an actor can have in a given situation and are core qualities of social interactions. Parsons (1951) noted that the variables

reflect a defined set of options whose permutations and combinations reflect an actor's orientation within a social system and influences patterns of interactions. The five basic pattern variables are noted in Table 2.

Table 2

PATTERN VARIABLES
Self vs. Collective Interest
Universalism vs. Particularism
Achievement vs. Ascription
Specificity vs. Diffuseness
Affectivity vs. Affective Neutrality

Self vs. Collective Interest

This pattern variable reflects whether an actor's focus is self-oriented or oriented toward the collective. The actor is considered to have a self-orientation if the pursuit of private interests is paramount to the collective interest (Parsons, 1951). It looks at an actor's interest in satisfying personal concerns rather than concerns that are shared with members of the collective. Parsons suggested that the private vs. collective dichotomy is actually a category that can have influence upon the other pattern variables and can be influenced by institutional factors.

Universalism vs. Particularism

This pattern variable category focuses upon the actor's role expectations. If the actor's orientation is universal, his interaction toward all others is the same. If the actor's orientation is particular, his interaction is based upon the fulfillment of an obligation that is specific toward an individual or based upon a particular relationship with the individual. Parsons (1951) noted that the fulfillment of contractual agreements can be a reflection of universal generalization. The polar alternative is the fulfillment of an obligation based upon an individual's membership to a particular group (Parsons, 1951).

Achievement vs. Ascription

This pattern variable category focuses upon the actor's perspective regarding goal attainment. If an actor's orientation emphasizes performance, then the actor's focus is considered to be achievement. The expectation is that the actor achieves goals and success through performance. The polar alternative is if the actor's orientation emphasizes attributes or status within a system to attain goals. Orientation that emphasizes an actor's membership group is considered to be a focus upon ascription (Parsons, 1951).

Specificity vs. Diffuseness

This pattern variable category focuses upon the actor's interest and interaction with social objects. An actor's interest in a social object can be specific toward a particular object or can be broader with a more diffuse scope. If an actor has an orientation of specificity toward an object, it means that interaction with the social object

is based upon specific terms. If an actor has a diffuse orientation, the actor's perspective toward social objects is broad and is not limited toward the specific object (Parsons, 1951).

Affectivity vs. Affective Neutrality

This pattern variable category determines whether an actor expresses their orientation toward social objects in terms of immediate gratification (affectivity) or in terms of moral interests (affective neutrality). An actor with an affectivity orientation derives or seeks to derive pleasure or gratification from their interactions. Parsons (1951) noted that an actor is unable to subsist without immediate gratification. However, a social system may require the renunciation of an actor's gratification in effort to attain the social system's goals (Parsons, 1951). An actor who remains impartial in their interactions does not obtain or seek to obtain personal gratification in their encounters and attempts to maintain a neutrality in their interactions.

Pattern Variable Grouping

Parsons (1951) recognized that actors' roles within a social system are composed of complex patterns that can define behavior. Identification of an actor's orientation for each pattern variable offers insight into an actor's behavior within their specific roles. Institutional forces are a fundamental element of a social system and can define social roles and establish expectations for social interactions. These forces can influence an actor's orientation patterns.

Pattern variables can be grouped based upon their relevance to an actor's value or motivational orientation in a given social system. Parsons (1951) suggested the

universalism-particularism and achievement-ascription pattern variables are more closely related to value orientation than the other pattern variables. In contrast, specificity-diffuseness and affectivity-affective neutrality are more closely related to an actor's motivational orientation. The pattern variable self-collective can be considered neutral in reference to value and motivational orientations' reference points. Grouping of the pattern variables and assessing potential interrelationships between variables provides the basis for a more comprehensive assessment of social interaction. Table 3 provides the scheme for pattern variable grouping.

Table 3

Grouping of Pattern Variables	
<i>Orientation</i>	
Integrative	Self, Collective
Value	Universalism, Particularism Achievement, Ascription
Motivational	Specificity, Diffuseness Affectivity, Affective Neutrality

Value Orientation

The pattern variable dichotomies **universalism-particularism** and **achievement-ascription** are most directly related to an actor's value orientation. They are important variables when assessing an actor's orientation toward role expectations and goals.

These pattern variables are concerned with the norms that exist within the social system.

The universalism-particularism variable focuses upon the actor's role expectations and the actor's view of the role's norms and values as universal or particular. Achievement-ascription focuses upon the actor's view of whether the role emphasizes goal attainment based upon performance or personal attributes (Parsons, 1951).

Motivational Orientation

The pattern variable dichotomies **specificity-diffuseness** and **affectivity-affective neutrality** are most directly relevant to an actor's motivation. Parsons noted that an actor must have a motivational focus to function within a social system. The motivational pattern variables are important when assessing an actor's personality needs. The specificity-diffuseness dichotomy focuses upon whether an actor's role requires specificity or diffuseness during social interactions. The affectivity-affective neutrality dichotomy focuses upon whether the actor receives immediate gratification or is impartial in their social interactions (Parsons, 1951).

Integrative Orientation

The self-collective orientation pattern variable is an important integrative component for actors. It has significance in that it serves as a critical internal reference point and can influence the focus of other pattern variables. In contrast, the other pattern variables have reference points that are external to the actor and are based upon interaction with others within the social system (Parsons, 1951).

Combinations of Value Orientations

Table 4 offers the possible combinations of the value orientation variables. The potential interrelationships between universalism-particularism and achievement-ascription describe the major social value orientations. Each cell can be further evaluated in relation to the pattern variables that are related to motivational orientation (Tables 5-8). All of these combinations can then be assessed in regards to an individual's focus upon self or the collective. This type of evaluation can result in 32 possible combinations of the 5 pattern variable dichotomies. However, Parsons (1951) noted that in the evaluation of a social system and an actor's interaction within the social structure, the value- and motivational- orientation pattern variable dichotomies are emphasized. The pattern variable dichotomy of self vs. collective is typically omitted from the evaluation of interactions within a social system because of its symmetrical relation to the whole scheme. The integrative orientation can be used to subdivide any of the cells within the Tables 5-8. Parson's categorization of an actor's pattern variable orientation can be the foundation upon which an actor's interaction within a social system can be evaluated (Parsons, 1951).

Table 4

Integration of Value-Orientation Pattern Variables

	UNIVERSALISM	PARTICULARISM
ACHIEVEMENT	<i>Universalistic Achievement Pattern</i>	<i>Particularistic Achievement Pattern</i>
	Expectation of active achievement in accord with universalized standards and generalized rules relative to other actors	Expectation of active achievement relative to and/or on behalf of the particular relational context in which the actor is involved
ASCRPTION	<i>Universalistic Ascription Pattern</i>	<i>Particularistic Ascription Pattern</i>
	Expectation of an orientation of action to a universalistic norm defined either as an ideal state or as embodied in the status-structure of the existing society.	Expectation of an orientation of action to an ascribed status within a given relational context.

Universalistic - Achievement Pattern

The universalistic-achievement pattern puts the actor's emphasis on universally defined goals and a focus on achievement to obtain the particular goals. Active achievement occurs in accordance with accepted rules and standards. The combination of universalism orientation with achievement orientation places the emphasis upon a selected process of goal attainment. The choice of the means to achieve and the particular goal to be pursued is based upon the individual. Pragmatism epitomizes this orientation (Parsons, 1951).

Universalistic Ascription Pattern

The universalistic-ascription pattern puts an emphasis on the achievement of an ideal state in the structure of an existing society. When universalism is combined with an ascriptive emphasis, the primary relevance of universal standards shifts the emphasis to attaining a social system's desired structure based upon an individual's or group's membership status. It is possible that the universalistic elements of this combination of orientations can introduce strain into the system when there is a focus upon universalism concurrent with an attempt to maintain a status quo that is based upon membership status (Parsons, 1951).

Particularistic Achievement Pattern

The particularistic-achievement pattern puts emphasis of achievement in the particular social context in which the actor is involved. The focus is on an actor's relationship with social objects with whom he is interacting with an attempt to achieve within a given social structure. The actor with a particularistic achievement orientation adapts to the goals of the social system (Parsons, 1951).

Particularistic Ascription Pattern

The particularistic-ascription pattern places emphasis upon an actor's action within an ascribed status of the social structure. It is perceived as that the actor is adapting his action within an order or social status for which he is not responsible (Parsons, 1951).

When considering the integration of the value orientation pattern variables, one can also focus upon whether the actor has a self or collective orientation. The universalistic-achievement pattern and the particularistic-ascription pattern have an emphasis upon the self orientation. The universalistic-ascription pattern and the particularistic-achievement pattern have an emphasis upon the collective orientation. In these patterns, there is a focus of responsibility toward the social system rather than emphasis upon self (Parsons, 1951).

An analysis of a social system requires an evaluation of the patterns of interactions and their relationship to the social system's functions. It is the dominant value orientation pattern that can influence behavior within a given social structure. Differentiation between social systems may correspond to value orientation patterns. However, social structures are not only a function of value orientation patterns, but are a result of the integration of value orientation patterns with pattern variables that emphasize motivation. The integration of value orientations and motivational orientations are outlined in Tables 5-8. Additionally, all of these patterns can be assessed from the perspective of a self or collective orientation.

Table 5

Universalistic - Achievement Patterns

		UNIVERSALISM	
		<i>Affectivity</i>	<i>Affective Neutrality</i>
A C H I E V E M E N T	<i>Specificity</i>	Expectation of specific affective expressions toward a class of objects on the basis of achievement	Expectation of specific disciplined action toward a class of objects on the basis of achievement
	<i>Diffuseness</i>	Expectation of diffuse affective expression toward a class of objects on the basis of achievement	Expectation of diffuse disciplined action toward a class of objects on the basis of achievement

Table 6

Universalistic - Ascriptive Patterns

		UNIVERSALISM	
		<i>Affectivity</i>	<i>Affective Neutrality</i>
A S C R I P T I O N	<i>Specificity</i>	Expectation of specific affective expression toward a class of objects on the basis of qualities	Expectation of specific disciplined action toward a class of objects on the basis of qualities
	<i>Diffuseness</i>	Expectation of diffuse affective expression toward a class of objects on the basis of qualities	Expectation of diffuse disciplined action toward a class of objects on the basis of qualities

Table 7

Particularistic - Achievement Patterns

		PARTICULARISM	
		<i>Affectivity</i>	<i>Neutrality</i>
A C H I E V E M E N T	<i>Specificity</i>	Expectation of specific affective expression toward a class of objects in a particular relationship with the actor on the basis of performance.	Expectation of specific disciplined action toward a class of objects in a particular relationship with the actor on the basis of performance
	<i>Diffuseness</i>	Expectation of diffuse affective expression toward a class of objects in a particular relationship with the actor on the basis of performance	Expectation of diffuse disciplined action toward a class of objects in a particular relationship with the actor on the basis of performance

Table 8

Particularistic - Ascriptive Patterns

		PARTICULARISM	
		<i>Affectivity</i>	<i>Neutrality</i>
A S C R I P T I O N	<i>Specificity</i>	Expectation of specific affective expression toward a class of objects in a particular relationship with the actor on the basis of qualities	Expectation of specific disciplined action toward a class of objects in a particular relationship with the actor on the basis of qualities
	<i>Diffuseness</i>	Expectation of diffuse affective expression toward a class of objects in a particular relationship with the actor on the basis of qualities	Expectation of diffuse disciplined action toward a class of objects in a particular relationship with the actor on the basis of qualities

Physicians and Pattern Variable Analysis

Parsons (1951) evaluated the medical profession using pattern variable analysis. It was suggested that physicians' express a self interest in their pursuit of a career in medicine, although there is a dominating collective orientation that emphasizes the uniform desire to care for patients. Physicians were noted to have a value orientation of universalism resulting from a generalized impartiality and scientific objectivity that can be required in treating patients and a professional orientation of achievement. Additionally, Parsons noted that physicians' motivational orientation included specificity and affective neutrality. Physicians demonstrate specificity resulting from the need to individualize care based upon information that is particular to the patient. Physicians also demonstrate an affective neutrality in their interactions with patients because of their professional desire to remain neutral while obtaining and utilizing intimate information about their patients when delivering care. (Parsons, 1951). There, however, have been no additional investigations of the medical profession using pattern variable analysis.

Race and Pattern Variable Analysis

There is evidence to suggest that race can have an impact on social interactions. Increased attention has been directed toward the influence of race within institutions (Purcell & Cavanagh, 1972; Alderfer, Alderfer, Tucker & Tucker, 1980; Davis & Watson, 1982; Landis, Hope & Day, 1984; Alderfer & Thomas 1988; Alderfer, Alderfer, Bell & Jones, 1992). Parsons' pattern variable analysis can provide a conceptual framework for the evaluation of the impact of patient race upon physician practice patterns.

Parsons noted that race in the United States has been a moral issue that has resulted in fundamental changes within American society. The relative disadvantaged circumstances of African-Americans caused significant societal controversy because the national creed is based upon equality. Legislative changes supported the emergence of an organized civil rights movement that extended the full aspects of citizenship to minority populations. However, Parsons also noted that while legislative and institutional changes supported the extension of citizenship rights to African-Americans, there had been a substantial lag in obtaining equality of health between African-Americans and whites (Parsons, 1965).

Parsons noted that an historic concern for the nation has been that African-Americans have often served as a symbol of inferiority. While, the idea of African-American inferiority is incompatible with societal principles, vestiges of the American past have the potential to influence the delivery of health care services. Physicians, as a professional group, may not be immune to the effect of a patient's race upon their interactions. While it would be ideal that medical education and training could minimize any negative influence that a patient's race may have upon their interaction with their physician, evidence suggests that a patient's race may influence physicians' practice patterns (Wenneker & Epstein, 1989; Satariano, Swanson & Moll, 1992; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein, 1993; Johnson, Lee, Cook, Rouan & Goldman, 1993; Tunis, Bass, Klag & Steinberg, 1993; Phillips et al, 1996; Gornick, 1999).

CHAPTER 3

METHODS

The strategy of this research study was to employ convergent methodology. The use of different methods to evaluate a specific issue allows for a broader perspective to be gained about a given topic (Jick, 1979). The mixture of quantitative and qualitative methods in this investigation was complementary and offered insights into the relationship of patients' race with the receipt of health care services. Combining research methods took advantage of the strengths of each method and minimized the potential weaknesses of a single-method study design. The use of multiple methods in a single investigation, also called triangulation, has been supported by a number of researchers (Webb, Campbell, Schwartz & Sechrest, 1966; Smith, 1975; Denzin, 1978; Jick, 1979).

Triangulation is the use of a combination of methods to study the same phenomenon (Denzin, 1978). Smith (1975) explained that it was a metaphor adopted from military strategy that employs multiple reference points to identify a position (Smith, 1975). The use of multiple research methods can allow for greater accuracy in the interpretation of any phenomenon. Any bias that may be inherent in a particular data source can be compensated for by the use of another source of data. The use of varying research techniques also allows for the emergence of different aspects of the phenomenon studied. Employing quantitative and qualitative measures in this investigation allowed for the examination of physician practice patterns and the potential effect of patient race from different perspectives. This two-phase research design added breadth to the research and substantiated the findings. Table 9 provides an outline of the study design.

Table 9

<i>RESEARCH OVERVIEW</i>	
THE EFFECT OF PATIENT RACE UPON PHYSICIANS' COLORECTAL CANCER SCREENING:	
A RETROSPECTIVE MEDICAL RECORD REVIEW AND PHYSICIAN PATTERN VARIABLE ANALYSIS	
Phase I:	Quantitative Component <i>Non-experimental observational</i>
	Site Selection
	Population Selection
	Data Collection
	Case form development
	Retrospective chart review
	Data entry
	Analysis
	Univariate and multivariate statistical analysis
Phase II:	Qualitative Component <i>Semi-structured Interviews</i>
	Site Selection
	Population Selection
	Data Collection
	Semi-structured Interviews
	Analysis
	Data interpretation

Justification of the Two-Phase Research Design

In this research study, the quantitative phase was distinct from the qualitative phase. This approach allowed for the incorporation of different epistemological perspectives into the investigation. The structure of this research project, using different

paradigms, provided a thorough evaluation of the research issue. In this two-phase sequential triangulation design (Morse, 1991), the results of the quantitative phase were used to assist in the development of the interviewing component of the qualitative phase. The utilization of this dual-method study design added breadth and strength to the interpretation of the results (Denzin, 1978; Creswell, 1994; Jick, 1979; Portney & Watkins, 2000).

Quantitative Inquiry

Quantitative methodology is linked to a philosophy of logical positivism in which human experiences are assumed to be logical. This investigative approach assumes that there is logic and, perhaps, a controlled relationship between specific variables. It views reality as phenomenon that can be objectively measured. These variables, measured numerically, are analyzed using statistical methods to determine if generalizations can be made based on the data. A systematic view of a phenomenon, as dictated by this research paradigm, identifies the relationships among the measured variables. Consistent with this philosophy, during Phase I of the study, the investigator remained distant from the study population. Using a deductive form of logic, the hypotheses were tested through statistical analysis to develop an understanding of the phenomenon being studied (Creswell, 1994). The evaluation of physicians' colorectal cancer screening practices was amenable to quantitative inquiry because of the availability of medical record documentation.

Qualitative Inquiry

The essence of the qualitative method is to describe the complex nature of humans and how experiences are perceived within a specific context. This approach emphasizes the understanding of the human experiences and attempts to explore the nature of individuals' interactions with others and their surroundings. It is a holistic approach that has been termed naturalistic and interpretative. This approach offers a postpositivist perspective. Reality is constructed by the individuals in the research situation with the understanding that multiple realities can exist (Creswell, 1994).

Important in the nature of qualitative research strategy is the method of data collection. The most common method of data collection in this type of research is through interviews. Categories emerge from the participants, rather than being identified by the researcher. The emergence of categories can lead to patterns and theories that assist in the explanation of the phenomenon studied. Phase II of the study complemented the statistically interpreted data from Phase I. The findings from the qualitative phase provided breadth and richness to the understanding of physicians' colorectal cancer screening practice patterns and the influence of patients' race upon physicians' adherence to health care delivery guidelines.

The inclusion of a qualitative component in this research study was important. Limiting interpretation of the studied phenomenon to quantitative data collection does not result in as full an appreciation of the issue evaluated. Since preventive health care services is an important component of medical care delivery, an improved understanding of physician practice patterns is critical. Gaining an understanding of physicians' orientation toward medicine and health care delivery offers a greater appreciation of

physicians' colorectal cancer screening practices and the potential relationship with patient race. Issues emerged during the qualitative phase of this study that were not apparent during the quantitative phase and were not anticipated by the researcher.

Research Questions and Hypotheses

The primary research question in this study focused upon the evaluation of physician practice patterns and the potential impact of patient race.

- **Is there a relationship between internal medicine resident physicians' colorectal cancer screening practices and patient race?**

Colorectal cancer causes significant morbidity and mortality in the United States (Greenlee, Hill-Harmon, Murray & Thun, 2001). Efforts to decrease the morbidity and mortality of this malignancy have included the establishment of guidelines for early detection of cancer or pre-cancerous lesions. Multiple medical organizations support screening for colorectal cancer (U.S. Preventive Care Task Force, 1996; American College of Physicians, 1997; Winawer et al, 1997; Burt, 2000; Rex, Johnson, Lieberman, Burt & Sonnenberg, 2000; American Cancer Society, 2001). Colorectal cancer screening was selected for analysis because it is an important component of preventive care delivery in the United States.

Hypothesis:

Physician practice patterns may be influenced by multiple factors. Patient race has been speculated to influence physicians' patterns of practice. It was hypothesized that there is a relationship between internal medicine resident physicians' adherence to colorectal cancer screening guidelines and patient race.

The specific questions addressed in this study determined if there was a relationship between physicians' screening practices and patient race. These questions are as noted.

- **What are the internal medicine resident physicians' colorectal cancer screening practices?**

Hypothesis:

Colorectal cancer screening is an important component of preventive care services. However, there is evidence to suggest that physicians may variably adhere to colorectal cancer screening recommendations (Escare, Epstein, Colby & Schwarz, 1993; McMahon Jr. et al, 1999). There are limited studies that have assessed internal medicine resident physicians' practice patterns (Lynch & Prout, 1986; Robie, 1988; Schreiner, Petrusa, Rettie & Kluge, 1988; Wheat, Kunitz & Fisher, 1990; Struewing, Pape & Snow, 1991; Evans et al, 1996; Wong, Hollenberg & Charlson, 1996; Ockene, Wheeler, Adams, Hurley & Hebert, 1997; Cardoza et al, 1998; Holmboe, Scranton, Sumption & Hawkins, 1998; Bernard, Anderson, Cook & Phillips, 1999; Borum, 1996a, 1996b, 1997a, 1997b, 1999, 2000; Zack, DiBaise, Quigley & Roy, 2001). It was hypothesized that internal

medicine resident physicians inconsistently adhered to colorectal cancer screening guidelines.

- **Do internal medicine resident physicians have variance in integrative, value and motivational orientations that can be determined using a Parsonian pattern variable analysis?**

Hypothesis:

Colorectal cancer screening is a reflection of internal medicine resident physicians' practice patterns. These practice patterns are important aspects of the interaction between physicians and patients. Integrative, value and motivational orientations can influence physicians' interactions with patients and their subsequent practice patterns. Parsonian pattern variable analysis can be utilized to determine internal medicine resident physicians' orientations. It was hypothesized that the pattern variable orientations were related to physicians' adherence to colorectal cancer screening guidelines.

Research Procedures

The overall focus of both the quantitative (Phase I) and the qualitative (Phase II) phases is to determine if there is a relationship between colorectal cancer screening and patient race.

Phase I: Quantitative Inquiry

The medical record review utilized in this phase of the study allowed for an accurate assessment of physicians' practice patterns. This approach did not allow the investigator to influence physicians' behavior and did not interfere with the delivery of health care. The colorectal cancer screening practices of internal medicine resident physicians were assessed through a retrospective chart review. The primary question addressed in this phase of the study is as follows.

- **What are the internal medicine resident physicians' colorectal cancer screening practices?**

Site Selection

The study was conducted in the ambulatory care center of The George Washington University Medical Center (GWUMC), Washington, D.C. This medical center offered preventive care services by the Department of Medicine to individuals seeking health care by the university physicians. There were specific guidelines that were accepted for colorectal cancer screening by the practicing physicians. The university medical center had centralized storage of medical records which permitted retrieval of information. The investigator had access to the physicians and the medical records at this medical facility.

Data Collection

Population Selection.

The medical records of the internal medicine resident physicians in the Department of Medicine at GWUMC were evaluated. Internal medicine resident physicians were selected for evaluation because they were required to maintain a supervised clinical care practice at GWUMC during the years that they were in post-graduate training. Each of the internal medicine resident physicians was supervised by a single faculty physician. Internal medicine resident physicians were expected to deliver continuity health care, including preventive care services to their patients.

There were accepted departmental guidelines for preventive care, including colorectal cancer screening. The American Cancer Society recommendations for colorectal cancer screening (American Cancer Society, 2001) were incorporated into the departmental guidelines for preventive health care delivery. The internal medicine residents were expected to initiate colorectal cancer screening in individuals ≥ 50 years of age. The colorectal cancer screening was to include annual rectal examinations, annual fecal occult blood testing and a flexible sigmoidoscopy every 5 years or barium enema every 5-10 years or a colonoscopy every 10 years in individuals who were not at increased risk for colorectal cancer development. All of the internal medicine resident physicians were given written and verbal instructions for colorectal cancer screening. It was expected that a patient receive their health care services by one internal medicine resident.

The medical records of the internal medicine resident physicians were available for review. It was an expectation that the internal medicine resident physicians document

all of their patient interactions, medical services and recommendations in the medical records.

Patient Population.

The patient population cared for by the internal medicine resident physicians at GWUMC was racially diverse. However, the predominant racial composition of the patient population cared for at GWUMC was African-American and white. The analysis of colorectal cancer screening services and the effect of patient race was confined to an assessment of African-American and white patients.

Retrospective Medical Record Review.

A retrospective medical record review is a reliable and valid method of data collection when attempting to evaluate the circumstances that exist (Abramson, 1990; Thomas, Studdert & Brennan, 2002). This type of review was selected for this study because it would provide data regarding the delivery of colorectal cancer screening services. It was understood that this study design did not allow for manipulation or control of the variables and that the inferences derived from this study could only be viewed within the constraints of the data. It was appropriate to use this method of information gathering in this study because professional and departmental expectations were that colorectal cancer screening services were documented in the medical record.

Medical Record Selection

African-American and white patients who were 50 years of age or older, received health maintenance evaluations and were cared for by an internal medicine resident physician were eligible for inclusion in the study. The inclusion criteria were based upon published colorectal cancer screening recommendations (U.S. Preventive Service Task Force, 1996; American College of Physicians, 1997; Winawer, 1997; Burt, 2000; Rex, Johnson, Lieberman, Burt & Sonnenberg, 2000; American Cancer Society, 2001). Medical records of patients were excluded if the patient had an increased risk for the development of colorectal cancer (which changes the screening recommendations) (Bond, 2000; Borum, 2001) or if the patient was evaluated for only a specific medical concern (rather than a health maintenance evaluation during which preventive care services are delivered).

Power analysis was performed to determine the number of medical records that were required for statistical significance. When the alpha level was set at .05 with an assumed baseline screening for colorectal cancer of 85% and a power set at 80, to detect a 20% difference in service delivery, 96 medical records of both African-American and white patients would be required for review. When the alpha level was set at .05 with an assumed baseline screening for colorectal cancer of 85% and a power set at 80, to detect a 25% difference in service delivery, 65 medical records of both African-American and white patients would be required for review. If the same alpha level, baseline screening for colorectal cancer and power are assumed with an expectation to detect a 30% difference in service delivery, 47 medical records of both African-American and white patients would be required for review. A review of the available literature evaluating the

health status, access to medical care, use of medical interventions and preventive care in African-Americans and whites was the basis for the assumption that there would be a 30% difference in physicians' colorectal cancer screening practices in African- American and white patients. This investigation was based upon the evaluation of a minimum of 47 medical records of African-Americans and whites. The power analysis is outlined in Appendix 1.

Data Collection

Colorectal cancer screening was considered to have been performed if there was documentation in the medical record of the performance of a rectal examination, fecal occult blood testing and endoscopic and/or radiologic evaluation of the colon within the recommended timeframe. Information about patients' race, patients' gender and physicians' gender was obtained. The case report form is included in Appendix 2.

Data Entry

Microsoft Excel was used for data entry. Variables were coded to assist in the entry and subsequent analysis. Patient name and medical record number were eliminated from the database to ensure confidentiality. The data was entered on two separate occasions to decrease the potential for data entry error.

Data Analysis

Univariate and multivariate statistical analyses were conducted. Univariate analysis was performed to determine the correlation of patient race and the receipt of colorectal cancer screening services. Analysis of patient gender and physician gender

with colorectal cancer screening was also performed. Statistical significance was assessed using Fischer's exact test with contingency tables that generated p-values. Significance was set at $p < 0.05$. Multivariate analysis using logistic regression was conducted to evaluate the independent variables using SAS program (SAS Institute, Inc., 1997). This analysis evaluated the relationship between patient race, patient gender, patient age and physician gender with the conduction of colorectal cancer screening.

Phase II: Qualitative Inquiry

The epistemological basis of a qualitative study design is that the informants interviewed in the study construct their own reality and that categories of data emerge from the informants. The categories that develop improve the understanding and contribute to the development of a theory about the phenomenon studied. Critical to the performance of a qualitative study is the method of data collection in relation to the phenomenon studied. A common form of data collection is the interview (Portney & Watkins, 2000). This investigation used semi-structured interviews of randomly selected physicians to evaluate the relationship between colorectal cancer screening and patient race.

The interviews in this phase of the study assessed physicians' perspectives about their profession and gained information that identified their pattern variable orientations. This approach allowed the investigator to gain a broader understanding about the physicians' view about health care delivery and patient interaction. The influence of patient race upon physicians' adherence to colorectal cancer screening was assessed. The primary question addressed in this phase of the study is as noted.

- **Do internal medicine resident physicians have variance in integrative, value and motivational orientations that can be determined using a Parsonian pattern variable analysis?**

Site Selection

Interviews were conducted at The George Washington University Medical Center in the ambulatory care center. The site was chosen because this is the location where the physicians deliver health care services. This allowed for the interviewing venue to be comfortable and easily accessible to the physicians participating in the interviews.

Population Selection

A purposeful sampling method was utilized to select internal medicine resident physicians for interviews. The physicians were selected based upon the results of the quantitative analysis. During Phase I of the study medical records were categorized based upon whether there was physician adherence or lack of adherence to colorectal cancer screening guidelines. The medical records were then separated based upon patient race and further separated based upon patient gender. The numerical code assigned to each medical record during the quantitative phase was placed in the appropriate category. Medical records from each category were randomly selected using a simple randomization process (Portney & Watkins, 1993) to avoid any potential investigator selection bias. The physicians who cared for the patient whose medical record was randomly selected were interviewed. (Table 10) The investigator did not have

knowledge about the physician's colorectal cancer screening practices prior to the interview or data analysis.

Table 10

Selection Process for Physician Interviews

			Randomly selected physician
Medical records indicating adherence to colorectal cancer screening guidelines →	African-American →	Male →	*
		Female →	*
	White →	Male →	*
		Female →	*
Medical records indicating lack of adherence to colorectal cancer screening guidelines →	African-American →	Male →	*
		Female →	*
	White →	Male →	*
		Female →	*

The physicians were asked to discuss their perspectives about the medical profession and health care delivery. Informed consent was obtained prior to the conduction of the interview. The interview explored preventive care practices, including colorectal cancer screening practices. The issues of central importance in the qualitative component of the investigation were the identification of the physicians' integrative, value and motivational orientations.

Data Collection

This study employed interviewing as the source of qualitative data collection. In a single-method study design, the use of interviews as the only technique for data collection may not offer an ample view of the phenomenon being investigated (Patton, 1990). This study was composed of two phases, a quantitative and a qualitative component. This dual-method study design offered a broad perspective about physicians' health care delivery and the potential relationship with patient race. While medical records offer information about colorectal cancer screening practices, medical records do not consistently offer insight into physicians' perspectives about performing or not performing recommended screening tests. The information obtained during interviews contributed to an increased understanding about physicians' practice patterns.

There are several qualitative approaches to interviewing. These approaches include a conversational style interview, a semi-structured interview and a standardized interview. Each of these approaches is based upon the principle that the informants describe, in their own words, their perspective about the issue being addressed. A semi-structured interview approach was used for data collection in this study. It allowed the

interview to focus upon the issue of interest without offering specific options from which the informant can select a response (Patton, 1990).

Semi-Structured Interview.

In a semi-structured interview, a guide is prepared to aid in the discussion. The interview guide allows for a systematic flow of information. This approach provides a basis to compare responses. The question format and content is pre-specified, but the interview remains flexible to allow for the probing of specific issues.

A semi-structured interview format was used in this investigation. Prior to the conduction of the semi-structured physician interviews, a self-administered survey was taken by the physician-investigator and two pilot interviews were performed to determine whether the questions offered a realistic flow to the interview and were adequately probing. Following the self-administered survey and pilot interviews, additional questions were added to the initially prepared interview guide to improve the ability to obtain information about the physicians' integrative, value and motivational orientations. Questions about the physicians' feelings about practicing internal medicine and their interaction with patients were added in effort to gain accurate information about their orientation. Additionally, conduction of the pilot interviews allowed for optimization of the interviewing technique (i.e. tape recording method, selection of interviewing environment, unobtrusive note taking).

The semi-structured physician interviews occurred in the ambulatory care center at The George Washington University Medical Center. Since the study of physician practice patterns and patient race is a potentially sensitive area of research, the interviews

did not directly focus on the effect of patient race upon medical care. In addition, conducting interviews in a comfortable and accessible environment that was familiar to the physician was important. The interviews provided insight into physicians' pattern variable orientation.

The physicians' interviews focused upon the physicians' perspectives on medicine and health care services delivered to their patients. The interviews included a discussion with the physicians about their knowledge of and interactions with their patients. The interview content included issues regarding the physicians' experience in the delivery of preventive care services, their knowledge and opinions regarding colorectal cancer screening, as well as, their feelings and sensory questions (Patton, 1990). The physicians' perspectives about their role in the health care system and their integrative, value and motivational orientations were obtained. The interview guide is in Appendix 4.

Data Recording.

The semi-structured interviews were tape-recorded to fully and accurately record each of the informants' responses. Notes were also taken during the interview that consisted of major points, key terms and phrases of the informant in attempt to capture the informants' language. The use of a tape recorder did not eliminate the need to take notes. The tape recorder ensured accuracy of the data collection and allowed the investigator to focus directly upon and respond to the informant during the interview. The use of the tape recorder ensured that the interaction during the interview was not

compromised by an attempt to hand-record the information verbatim. Upon completion of the interview, observations about the interview were also recorded (Patton, 1990).

Data Transcription.

The investigator transcribed the interviews from the tape recordings. The notes of major points, key terms and phrases focussed attention upon specific areas of the tape-recorded interview. Repeated review of the recorded interviews and transcriptions allowed for the investigator to identify aspects of the interview that highlighted the physicians' pattern variable orientation. Information that appeared particularly important for analysis was extracted. There was an attempt to preserve exact quotations.

Data Analysis.

Data analysis included the identification of patterns and integrating responses in the physicians' statements. There were no formulas for determining significance or clear tests for reliability and validity. The interview data was repeatedly reviewed with identification of statements that could be classified based upon pattern variable categories. Analysis required interpretive judgment. The interpretative nature of this naturalistic inquiry offered strength to the investigation by obtaining a different type of information about physicians' health care delivery and the potential effect of patient race than was obtained in the quantitative phase.

The initial focus of analysis was to identify the major issues in the interviews. There was focussed attention upon the physicians' perspective on medicine, the physicians' role in the health care system and health care services delivered to their

patients. Statements that were consistent with integrative, value and motivational orientation were extracted. Each of these statements was then categorized based upon specific pattern variable categories. Patterns throughout the interview were identified. Statements in each category were evaluated for consistency within that category. The strength of the categorization was based upon the frequency and content of the comments. Saturation occurred when new data led to redundancy, suggesting that the categories are conceptually sound. Upon evaluation of the entire transcript, the orientation of the physician based upon pattern variables was determined. The pattern variable categories of each physician were compared with the other physicians' pattern variable categories to ensure consistency in the process. Convergence of data occurred when recurrent patterns were identified. Repeated evaluation of the data with the identification of the same categorization schemes supported the accuracy of the classification (Patton, 1990).

A second reviewer independently reviewed and analyzed the interview data. Physicians' integrative, value and motivational orientations were identified. This information was reviewed with the investigator. The second reviewer's interpretation of the physicians' orientation was consistent with the investigator's categorization. Following the second reviewer's analysis of the interview data and confirmation with the investigator, the identified themes and categorization were validated with the physicians who were interviewed.

Reliability and Validity

The concept of reliability and validity in qualitative research is different than in quantitative research. Statistical analysis is not incorporated into qualitative investigations. The concept of measurement error is considered in terms of judgments rather than numerical interpretations (Beck 1994; Creswell, 1994; Brink, 1995). Guba (1981) and Lincoln (1985) discussed that credibility and trustworthiness of the data collected in a qualitative study is demonstrated by finding consistency within the data. The presence of consistency in the data reflects the strength of data analysis.

The qualitative component of this research was analyzed through the repeated review of the tape-recorded data and notes taken during interviews. Credibility and trustworthiness of the data was confirmed when patterns emerged that allowed for the consistent categorization of the data. This categorization resulted in the identification of patterns and the interpretation of physicians' orientation using the Parsonian pattern variable classifications.

Validity of the data interpretation in a qualitative study can be confirmed by reviewing the investigator's interpretation of the data with the informants (Guba, 1981; Lincoln, 1985; Morse, 1994). In this study each of the physicians was asked about statements that were made during their interviews. The physicians confirmed that the extracted statements and the investigator's interpretation of the meaning of the statements were accurate. Pattern variables were discussed with the physicians and the physicians were asked to categorize their statements based upon the categorization scheme. The investigator reviewed the pattern variable categories at physicians' request to assist in categorization of statements. The investigator did not categorize statements for the

physicians. The physicians' and investigator's interpretations were compared. The physicians' classification of their statements was consistent with the investigator's pattern variable analysis.

Delimitations

This investigation broadened the understanding of physicians' colorectal cancer screening practices and the effect of patient race upon the delivery of health care services. However, the delimitations of the study narrowed the applicability of the results.

Phase I: Quantitative Component

This study evaluated physicians' colorectal cancer screening practices and the effect of patient race. However, the results of an evaluation of internal medicine resident physicians may only be a reflection of physicians who are receiving postgraduate training in the field of internal medicine. Information obtained from this physician population may not be representative of all physicians who deliver preventive care. Generalizing the results of this study outside this physician population may not be appropriate.

Colorectal cancer screening was selected as the health care issue to be explored because there are published and accepted guidelines. However, the delivery of colorectal cancer screening services may not be reflective of the delivery of other types of health care services.

Phase II: Qualitative Component

The qualitative component of this investigation evaluated physicians' pattern variable orientation. Physicians' perspectives on medicine and health care delivery were evaluated by assessing physicians' integrative, value and motivational orientations using Parsonian pattern variable analysis. While the results of this investigation broadened our insight of physicians' health care delivery and the potential influence of patient race upon colorectal cancer screening, this analysis may not reflect all of the physician factors that can influence health care delivery. Pattern variable analysis is only one aspect of the physician-patient interaction in a complex social system.

The evaluation of internal medicine resident physicians' pattern variables was a reflection of physicians who were receiving postgraduate education in the field of internal medicine. While these results were representative of the interviewed physicians, generalizing the results outside of the specific population studied may not be appropriate.

Limitations

There are limitations inherent in the methods utilized in this study. The potential limitations related to both Phase I (quantitative) and Phase II (qualitative) components of this study are outlined.

Phase I: Quantitative Component

A retrospective medical record review was the method used to obtain information regarding physician health care delivery patterns. The use of this type of chart review allowed for the evaluation of only the medical services that were

documented in the chart. While this methodology can be criticized for not being able to identify verbal recommendations offered by physicians, the selection of internal medicine resident physicians as the population studied addressed this concern. The GWUMC departmental guidelines for resident physicians required that all services delivered, both written and verbal recommendations, were documented in the medical record. Additionally, the use of a retrospective medical record review is considered a legitimate method for evaluating physician practice patterns. (Abramson, 1990; Thomas, Studdert & Brennan, 2002)

Phase II: Qualitative Component

The interpretation of qualitative data is dependent upon the breadth of information obtained through the interviewing technique. This investigation employed a semi-structured interviewing technique to focus the data gathering upon physicians' perspective about their profession and their pattern variable orientations. Semi-structured interviews can be criticized for limiting the breadth of information obtained. However, the interviewing method focussed the data collection upon the issues of interest.

Human Subjects Review and Ethical Issues

Human Subjects Review

The George Washington University Medical Center has an institutional review board (IRB) that oversees research. This proposal was submitted to the IRB to ensure acceptability by the institution. Confidentiality was maintained of all participants,

including the patients of the medical records reviewed and the internal medicine resident physicians.

The medical records were given a numerical code corresponding to the patients' names and medical record numbers. Information regarding the patients' demographics and the performance of colorectal cancer screening was extracted using the case report form. Patients' confidentiality was maintained by using the numerical code on the case report forms. Upon completion of the database development and analysis, the information that correlated the numerical codes with the patients' names and medical record numbers was destroyed. Data was retained using only the codes to ensure patients' confidentiality. The database contained no patient or physician identifying information.

The transcripts of the physician interviews were given a numerical code. Upon completion of the data collection and analysis, information that identified the physicians' names with the numerical code was destroyed. Any physician identifying information within the transcript was eliminated. The data was retained using only the numerical code preserving confidentiality.

Ethical Issues

An informed consent was obtained from all of the physicians who were interviewed. The physicians were informed that the study was evaluating relationships between physicians and patients. It was important that the physician recognize that the interview was voluntary, would not impact upon their residency training and was unrelated to any evaluation that they would receive during their training. Since the investigator was a faculty physician at the institution, it was critical that the internal

medicine resident physicians did not feel coerced into participating in the research.

Additionally, the research was designed in a manner that did not result in any of the interviews being conducted with resident physicians who were directly supervised and/or evaluated by the faculty physician performing the study.

CHAPTER 4

RESULTS

The results of this investigation are organized based upon the two components of the study. The results of Phase I (quantitative component) followed by the results of Phase II (qualitative component) are reviewed. The results of the Phase I retrospective medical record review are outlined. Internal medicine resident physicians' colorectal cancer screening techniques in African-American and whites are reported. Subsequent evaluations of colorectal cancer screening based upon patient gender and physician gender are also outlined. The univariate analyses are followed by a multivariate analysis that evaluated the effect of the independent variables upon colorectal cancer screening. The results of the Phase II semi-structured interviews are subsequently outlined. The integrative-, value- and motivational- orientations of the internal medicine resident physicians are separately discussed. The integration of these orientation patterns is also reviewed.

Phase I: Quantitative Component

The Department of Medicine had 46 resident physicians receiving post-graduate training in the categorical internal medicine residency program. The medical records of the patients evaluated by internal medicine resident physicians between January 2002 and March 2002 were obtained and reviewed for inclusion and exclusion criteria. The medical records that met appropriate criteria for the study were evaluated for adherence to colorectal cancer screening guidelines.

There were 31 (67%) male and 15 (33%) female internal medicine resident physicians. The physicians identified their race on their application to the internal medicine residency training program. Thirty-nine (85%) physicians were white, 1 (2%) physician was African-American, 5 (11%) physicians were Asian, and 1 (2%) physician was Hispanic. All of the physicians graduated from a United States accredited medical school and all of the physicians had completed an internal medicine internship in an accredited training program in the United States. The lists of patients evaluated by the internal medicine resident physicians from January 2002 through March 2002 were obtained. The patient lists included the patients' dates of birth and medical record numbers. The medical records of the patients who were age ≥ 50 years and received their health care by an internal medicine resident physician were evaluated for this study. Medical records were excluded from the study if the patient had not been seen for a health maintenance evaluation or if the patient had an increased risk for the development of colorectal cancer.

The medical records of 177 African-American and white patients cared for by internal medicine resident physicians were evaluated in this study. Data was extracted from the medical records by one physician using the case report form. (Appendix 2) Each medical record was given a numerical code. The medical records included 116 (65.5%) African-American and 61 (34.5%) white patients. The medical records of the 116 African-American patients included 35 (30.2%) males and 81 (69.8%) females. The mean age of the African-American patients was 64.8 years (range 50-88 years). The medical records of the 61 white patients included 22 (36.1%) males and 39 (63.9%)

females. The mean age of the white patients was 62.9 years (range 50-90 years). The demographics of the patients who were included in the study are outlined in Table 11.

Table 11

PATIENT DEMOGRAPHICS				
	Total	Gender		Age
		Male	Female	
All patients	177	57	120	64.2 (50-90)
African-American	116	35	81	64.8 (50-88)
White	61	22	39	62.9 (50-90)

Colorectal Cancer Screening

Physicians' adherence to colorectal cancer screening was evaluated. The performance of the rectal examination, fecal occult blood testing and the evaluation of the colon by a flexible sigmoidoscopy, colonoscopy or barium enema were assessed.

Rectal Examination

The internal medicine resident physicians performed 86 (48.6%) rectal examinations in the 177 African-American and white patients. There were 48 (41.4%) rectal examinations performed in the 116 African-American patients. In the 61 white patients, 38 (62.3%) had rectal examinations. There was a statistically significant difference ($p=0.0039$) in the rate at which rectal examinations were performed in African-American and white patients. (Table 12)

Fecal Occult Blood Testing

The internal medicine resident physicians performed 86 (48.6%) fecal occult blood tests in the 177 African-American and white patients. In the 116 African-American patients, 46 (39.7%) had fecal occult blood testing. In the 61 white patients, 40 (65.6%) had fecal occult blood testing. There was a statistically significant difference ($p=0.0006$) in the rate at which fecal occult blood testing was performed in African-American and white patients. (Table 12)

Flexible Sigmoidoscopy, Colonoscopy and Barium Enema

The flexible sigmoidoscopy, colonoscopy and barium enema are accepted methods of evaluating the colon for colorectal cancer screening. While certain colonic evaluations are used more frequently, published guidelines (American Cancer Society, 2001; Winawer et al, 1997) have noted that all of these tests can be used for colorectal cancer screening. These tests were evaluated as a unit in assessing the adherence to colorectal cancer screening recommendations.

In the 177 African-American and white patients seen by an internal medicine resident physician, 92 (52.0%) had a colonic examination performed. Forty-nine patients (53.3%) had flexible sigmoidoscopies, 42 patients (45.7%) had colonoscopies and 1 patient (<1%) had a barium enema for colorectal cancer screening. In the 116 African-American patients, 7 (6.0%) had flexible sigmoidoscopies, 24 (20.7%) had colonoscopies and none (0%) had barium enemas performed. There were a total of 31 (26.7%) colonic evaluations performed in African-American patients. In the 61 white patients, 42 (68.9%) had flexible sigmoidoscopies, 18 (29.5%) had colonoscopies and 1 (1.6%) had barium

enemas performed. There were a total of 61 (100%) colonic evaluations performed in white patients. There was a statistically significant difference ($p<0.0001$) in the rate at which colonic examinations were performed in African-American and white patients.

(Table 12)

Table 12

COLORECTAL CANCER SCREENING IN AFRICAN-AMERICAN AND WHITE PATIENTS			
	African-American patients (n=116)	White patients (n=61)	p-values
Rectal exams	48 (41.4%)	38 (62.3%)	P=0.0039
FOBT	46 (39.7%)	40 (65.6%)	P=0.0006
Colonic exams	31 (26.7%)	61 (100%)	P<0.0001

In the 177 patients seen by an internal medicine resident physician, 131 patients (74.0%) had at least one of the recommended colorectal cancer screening tests performed. While this may not have constituted adherence to the published guidelines, at least one of the examinations was performed in effort to screen for colorectal cancer. Seventy-seven (66.4%) of the 116 African-American patients had at least one of the colorectal cancer screening tests performed. Sixty-one (100%) of the 61 white patients had at least one of the colorectal cancer screening tests performed. There was a statistically significant ($p<0.0001$) difference in the rate of which at least one of the colorectal cancer screening techniques was employed in African-American and white patients.

Gender Subanalysis

Analysis of the impact of patient gender upon colorectal cancer screening was conducted. In the 177 African-American and white patients, there were 120 (67.8%)

females (81 African-American, 39 white) and 57 (32.2%) males (35 African-American, 22 white).

Rectal Examinations

The internal medicine resident physicians performed 86 rectal examinations (48.6%) in the 177 patients. Fifty-seven (47.5%) rectal examinations were performed in the 120 females and 29 (50.9%) rectal examinations were performed in the 57 males. There was no statistically significant difference ($p=0.1229$) in the rate at which rectal examinations were performed in female and male patients. (Table 13)

Evaluation of the performance of rectal examinations in African-American and white women was conducted. Thirty-three (40.7%) rectal examinations were performed in the 81 African-American females and 24 (61.5%) rectal examinations were performed in the 39 white females. There was a statistically significant difference ($p=0.0183$) in the rate at which rectal examinations were performed in African-American and white women. (Table 14)

Evaluation of the performance of rectal examinations in African-American and white men was conducted. Fifteen (42.9%) rectal examinations were performed in the 35 African-American males and 14 (63.6%) rectal examinations were performed in the 22 white males. There was a marginally significant difference ($p=0.0592$) in the rate at which rectal examinations were performed in African-American and white men. (Table 14)

Fecal Occult Blood Testing

The internal medicine resident physicians performed 86 (48.6%) fecal occult blood tests. Fifty-six (46.7%) females and 30 (52.6%) males had fecal occult blood testing. There was no statistically significant difference ($p=0.1075$) in the rate at which fecal occult blood testing was performed in female and male patients. (Table 13)

Evaluation of the performance of fecal occult blood testing African-American and white women was conducted. Thirty-one (38.3%) of the 81 African-American females and 25 (64.1%) of the 29 white females had fecal occult blood testing. There was a statistically significant difference ($p=0.0055$) in the rate at which fecal occult blood testing was performed in African-American and white women. (Table 14)

Evaluation of the performance of fecal occult blood testing in African-American and white men was conducted. Fifteen (42.9%) of the 35 African-American men and 15 (68.2%) of the 22 white men had fecal occult blood testing. There was a statistically significant difference ($p=0.0327$) in the rate at which fecal occult blood testing was performed in African-American and white men. (Table 14)

Flexible Sigmoidoscopy, Colonoscopy and Barium Enema

The flexible sigmoidoscopy, colonoscopy and barium enema were evaluated as a unit in assessing the adherence to colorectal cancer screening recommendations in the gender subanalysis. In the 120 female patients seen by an internal medicine resident physician, 32 (26.7%) had flexible sigmoidoscopies, 27 (22.5%) had colonoscopies and 1 (<1%) had a barium enema as a component of their colorectal cancer screening. A total of 60 (50.0%) endoscopic or radiologic evaluations of the colon were performed in

women. In the 57 male patients, 17 (29.8%) had flexible sigmoidoscopies and 15 (26.3%) had colonoscopies, for a total of 32 (56.1%) evaluations of the colon. There was no significant difference ($p=0.1070$) in the rate at which endoscopic or radiologic evaluations of the colon were performed in female and male patients. (Table 13)

Evaluation of the performance of endoscopic or radiologic evaluations of the colon in African-American and white women was conducted. Twenty-one (25.9%) of the 81 African-American women and 39 (100%) of the 39 white women had endoscopic or radiologic evaluations of their colon performed. There was a statistically significant difference ($p<0.0001$) in the rate at which an assessment of the colon was performed in African-American and white women. (Table 14)

Evaluation of the performance of endoscopic or radiologic evaluations of the colon in African-American and white men was conducted. Ten (28.6%) of the 35 African-American men and 22 (100%) of the 22 white men had endoscopic or radiologic evaluations of their colon performed. There was a statistically significant difference ($p<0.0001$) in the rate at which an assessment of the colon was performed in African-American and white men. (Table 14)

Table 13

COLORECTAL CANCER SCREENING IN FEMALE AND MALE PATIENTS			
	Female patients (n=120)	Male patients (n=57)	p-values
Rectal exams	57 (47.5%)	29 (50.9%)	P=0.1229
FOBT	56 (46.7%)	30 (52.6%)	P=0.1075
Colonic exams	60 (50.0%)	32 (56.1%)	P=0.1070

Table 14

COLORECTAL CANCER SCREENING IN AFRICAN-AMERICAN AND WHITE FEMALE AND MALE PATIENTS						
	Female patients (n=120)			Male patients (n=57)		
	African-American (n=81)	p-values	White (n=39)	African-American (n=35)	p-values	White (n=22)
Rectal exams	33 (40.7%)	P=0.0183	24 (61.5%)	15 (42.9%)	P=0.0592	14 (63.6%)
FOBT	31 (38.3%)	P=0.0055	25 (64.1%)	15 (42.9%)	P=0.0327	15 (68.2%)
Colonic exams	21 (25.9%)	P<0.0001	39 (100%)	10 (28.6%)	P<0.0001	22 (100%)

In the 177 female and male patients seen by an internal medicine resident physician, 131 (74.0%) had at least one of the recommended colorectal cancer screening tests performed. Ninety (75%) of the 120 female patients, 41 (71.9%) of the 57 male patients had at least one of the recommended colorectal cancer screening tests performed. Fifty-five (67.9%) of the 81 African-American women and 39 (100%) of the 39 white women had at least one of the colorectal cancer screening tests performed. There was a statistically significant difference ($p<0.0001$) in the performance of at least one screening test between the African American and white women. Twenty-two (62.9%) of the 35 African-American men and 22 (100%) of the 22 white men had at least one of the colorectal cancer screening tests performed. There was a statistically significant difference ($p=0.0006$) in the performance of at least one screening test between African-American and white men.

Physician Gender Subanalysis

The adherence to colorectal cancer screening recommendations by internal medicine resident physicians was also evaluated based upon physician gender. Female physicians cared for 59 patients. In the 59 patients, female physicians performed 28

(47.5%) rectal examinations, 28 (47.5%) fecal occult blood tests and 23 (39.0%) colonic examinations. Male physicians cared for 118 patients. In the 118 patients, male physicians performed 58 (49.2%) rectal examinations, 58 (49.2%) fecal occult blood tests and 69 (58.5%) colonic examinations. There was no statistically significant difference ($p=0.1239$) in the rate at which rectal examinations and fecal occult blood tests were performed by female and male physicians. There was a statistically significant difference ($p<0.0001$) in the rate at which colonic examinations were performed by female and male physicians. (Table 15)

Table 15

COLORECTAL CANCER SCREENING BY FEMALE AND MALE PHYSICIANS			
	15 Female Physicians 59 patients	p-value	31 Male Physicians 118 patients
Rectal exams	28 (47.5%)	P=0.1239	58 (49.2%)
FOBT	28 (47.5%)	P=0.1239	58 (49.2%)
Colonic exams	23 (39.0%)	P<0.0001	69 (58.5%)

In the female physicians' patient population, there were 40 African-American (30 female, 10 male) and 19 white (15 female, 4 male) patients. In the 40 African-American patients, female physicians performed 17 (42.5%) rectal exams, 16 (40.0%) fecal occult blood tests and 4 (10%) colonic exams. In the 19 white patients, female physicians performed 11 (57.9%) rectal exams, 12 (63.2%) fecal occult blood tests and 19 (100%) colonic exams. There was a marginally significant difference ($p=0.0573$) in the rate at which fecal occult blood tests were performed and a statistically significant difference ($p<0.0001$) in the rate at which colonic exams were performed in African-American and white patients by female physicians. (Table 16)

Table 16

FEMALE PHYSICIANS' COLORECTAL CANCER SCREENING IN AFRICAN-AMERICAN AND WHITE PATIENTS				
	All patients (n=59)	African-American patients (n=40)	p-value	White patients (n=19)
Rectal exams	28 (47.5%)	17 (42.5%)	P=0.2277	11 (57.9%)
FOBT	28 (47.5%)	16 (40.0%)	P=0.0573	12 (63.2%)
Colonic exams	23 (39.0%)	4 (10.0%)	P<0.0001	19 (100%)

In the 45 female patients, female physicians performed 21 (46.7%) rectal exams, 21 (46.7%) fecal occult blood tests and 18 (40%) colonic exams. In the fourteen male patients, female physicians performed 7 (50%) rectal exams, 7 (50%) fecal occult blood tests and 5 (35.7%) colonic exams. There was no significant difference in the rate at which colorectal cancer screening was conducted in female and male patients by the female physicians. (Table 17)

Table 17

FEMALE PHYSICIANS' COLORECTAL CANCER SCREENING IN FEMALE AND MALE PATIENTS				
	All patients (n=59)	Female patients (n=45)	p-value	Male patients (n=14)
Rectal exams	28 (47.5%)	21 (46.7%)	P=0.2341	7 (50.0%)
FOBT	28 (47.5%)	21 (46.7%)	P=0.2341	7 (50.0%)
Colonic exams	23 (39.0%)	18 (40.0%)	P=0.2382	5 (35.7%)

In the male physicians' patient population, there were 76 African-American (50 female, 26 male) and 42 white (24 female, 18 male) patients. In the 76 African-American patients, male physicians performed 31 (40.8%) rectal exams, 30 (39.5%) fecal occult blood tests and 27 (35.5%) colonic exams. In the 42 white patients, male physicians

performed 27 (64.3%) rectal exams, 28 (66.7%) fecal occult blood tests and 42 (100%) colonic exams. There was a statistically significant difference in the rate in which rectal exams ($p=0.0079$), fecal occult blood tests ($p=0.0042$) and colonic exams ($p<0.0001$) were performed in African-American and white patients by male physicians. (Table 18)

Table 18

MALE PHYSICIANS' COLORECTAL CANCER SCREENING IN AFRICAN-AMERICAN AND WHITE PATIENTS				
	All patients (n=118)	African-American (n=76)	p-value	White patients (n=42)
Rectal exams	58 (49.2%)	31 (40.8%)	P=0.0079	27 (64.3%)
FOBT	58 (49.2%)	30 (39.5%)	P=0.0042	28 (66.7%)
Colonic exams	69 (58.5%)	27 (35.5%)	P<0.0001	42 (100%)

In the 74 female patients, male physicians performed 36 (48.6%) rectal exams, 35 (47.3%) fecal occult blood tests and 42 (56.8%) colonic exams. In the 44 male patients, male physicians performed 22 (50%) rectal exams, 23 (52.3%) fecal occult blood tests and 27 (61.4%) colonic exams. There was no significant difference in the rate at which colorectal cancer screening was conducted in female and male patients by the male physicians. (Table 19)

Table 19

MALE PHYSICIANS' COLORECTAL CANCER SCREENING IN FEMALE AND MALE PATIENTS				
	All patients n=118	Female patients n=74	p-value	Male patients n=44
Rectal exams	58 (49.2%)	36 (48.6%)	P=0.1494	22 (50.0%)
FOBT	58 (49.2%)	35 (47.3%)	P=0.1159	23 (52.3%)
Colonic exams	69 (58.5%)	42 (56.8%)	P=0.1365	27 (61.4%)

Multivariate Analysis

A multivariate analysis using logistic regression was used to evaluate the independent variables of this study. This statistical model evaluated the relationship of patient race, patient gender, patient age and physician gender with the conduction of colorectal cancer screening. Patient race was the only factor that was significant for not performing rectal exams ($p=0.0039$), fecal occult blood testing ($p=0.0039$) and colonic exams ($p=0.0012$)

Summary of Phase I: Quantitative Analysis

Univariate analysis reveals that differences were present in the rate at which there was adherence to colorectal cancer screening recommendations between African-American and white patients. There were statistically significant differences in the rate at which rectal examinations ($p=0.0039$), fecal occult blood testing ($p=0.0006$) and colonic examinations ($p<0.0001$) were performed in African-American and white patients. There was no significant difference in the rate at which internal medicine resident physicians performed colorectal cancer screening tests in female and male patients. However, analysis based upon patient race and gender revealed that there was a statistically significant differences in the rate at which rectal examinations ($p=0.0183$), fecal occult blood testing ($p=0.0055$) and colonic exams ($p<0.0001$) were performed in the African-American and white females. There was also a marginally significant difference in the rate at which rectal examinations ($p=0.0592$) and a statistically significant difference in

the rate at which fecal occult blood testing ($p=0.0327$) and colonic exams ($p<0.0001$) were performed in the African-American and white males.

Physician gender analysis revealed that there was no significant difference in the rate at which female and male physicians performed rectal examinations and fecal occult blood tests. However, there was a statistically significant difference ($p<0.0001$) in the rate at which female and male physicians performed colonic examinations. In the patients cared for by female physicians, there was no significant difference in the rate at which female physicians performed rectal examinations in African-American and white patients. There was a marginally significant difference ($p=0.0573$) in the rate at which fecal occult blood testing and a statistically significant difference ($p<0.0001$) in the rate at which colonic exams were performed in African-American and white patients by female physicians. There was no significant difference in the rate at which female physicians performed rectal examinations, fecal occult blood testing and colonic exams in female and male patients.

There was a significant difference in the rate at which male physicians performed rectal examinations ($p=0.0079$), fecal occult blood testing ($p=0.0042$) and colonic examinations ($p<0.0001$) in African-American and white patients. There was no significant difference in the rate at which male physicians performed rectal examinations, fecal occult blood testing and colonic exams in female and male patients.

Multivariate analysis evaluating the influence of patient race, patient gender, patient age and physician gender reveals that the differences in which the rate at which colorectal cancer screening was conducted was explained only by patient race. The

patient age, patient gender and physician gender did not account for the differences in colorectal cancer screening practices.

Phase II: Qualitative Component

Semi-structured interviews were conducted to gain insight about the physicians' pattern variable orientations and to determine if these orientations were related to the delivery of health care services. The integrative, value and motivational orientations provided information regarding physicians' views about their profession and their patient relationships.

A self-administered survey and two pilot interviews were performed prior to the conduction of the interviews for the study. The survey and pilot interviews allowed for modification of the interview guide and optimization of the interviewing technique (i.e. appropriate tape recording method, selection of interviewing environment, unobstrucive note taking). Modification of the interview guide ensured that the study interviews gained information about physicians' pattern variable orientations in the context of health care delivery and patient interactions.

Eight internal medicine resident physicians were randomly selected for interviews based upon their adherence or lack of adherence to recommended colorectal cancer screening guidelines. The medical records were categorized based upon the conduction of colorectal cancer screening. These medical records were then separated based upon patient race and further separated based upon patient gender. The numerical code initially assigned to each medical record was used in a simple randomization process to

select the physicians to be interviewed (Portney & Watkins, 1993). All of the physicians selected through the randomization process consented to the interview.

Parsons' Pattern Variable Analysis of Physicians' Orientation

Evaluation of the verbatim transcripts developed from the interview tapes revealed that there were similarities and differences in the physicians' pattern variable orientations. A pattern variable from each of Parsons' five sets of dichotomies could be identified in each of the interviews.

Integrative Pattern Variable: Self vs. Collective Orientation

The semi-structured interviews revealed that the physicians had the same integrative pattern variable. All of the physicians had a professional focus that could be identified as self oriented. Self orientation was apparent when the physicians' personal interests were paramount to the collective interests of the profession. Physicians offered personal interests for the pursuit of a medical career. Several physicians noted that becoming a physician was based on familial encouragement and support or experiences within their family. One physician noted that a parent suggested that she go to medical school and influenced her specialty choice. She stated, "I have a background of a father who is a physician and a mother who is a nurse... my mom suggested that I be a doctor and go to medical school." Internal medicine was pursued as a specialty choice despite her interest in psychiatry because the selection of a career in psychiatry would have resulted in significant familial resistance. She noted, "I like continuous care. Medicine just interested me. I really like psychiatry too... In a perfect world, I would have done

that. [But] I would have gotten a lot of resistance from the people who are close to me.” One of the physicians noted that his pursuit of a medical career was partially based upon the influence of family members and partially based upon his interest in science and biology. When discussing his pursuit of a medical career, he noted, “... in part [it was] related to family influences. It’s not that anyone in my family was a physician or anything like that, but there was always talk of it ever since I was young”. In addition, he noted, “... I was interested in science and biology”. Another physician stated that his family was influential in choosing medicine as a career. He noted, “One of [the reasons] is the influence of family members. My father is a physician... but, also I’m very close to my maternal grandfather .. [who] said that he wished he had the opportunity”. Family encouragement was a frequent theme among physicians when asked about becoming a physician. However, other physicians expressed personal factors that influenced their career choice. One of the physicians noted that his father’s illness and death influenced his decision to become a physician. He stated that, “Actually my father’s death was among the first beasts I faced in my life. And he had a painful death...I wanted to become a doctor since that time.” It is clear that his pursuit of a medical career was based upon intensely personal reasons.

When physicians were asked about reasons for pursuing a career in internal medicine factors that were self-oriented were given. As previously noted, one physician stated that familial pressure influenced her decision to specialize in internal medicine. Two of the physicians noted that internal medicine offered a range of career opportunities available to them upon completion of their residency training. One of the doctors noted that internal medicine was a career choice for him because, “... you have the opportunity

to do something general or specializing in one of the fields that I might be interested in.” Another physician stated, “[Internal medicine] gives you a lot of options. I like the amount of options that come out of it.” All of these were examples of personal, self-oriented reasons for pursuing a career in medicine.

In addition, physicians reported that they were interested in a profession that enabled them to interact with people. The interaction with people was an important factor in their career choice. One physician noted, “Medicine is so interesting to me. I love people and I’m attract[ed] to people and I’m very, very social”. Another physician stated that, “The beauty in medicine is that there are some careers where you can use your hands, some careers that you can use your mind, and some careers that you can talk to people. Medicine is one of those careers where you can kind of combine all of that. It is a nice combination.” The pursuit of medicine for these physicians was based upon the enhancement of personal knowledge and the desire to interact with people.

All of the physicians offered statements in their interviews that were examples of self orientation because each physician was interested in satisfying personal concerns in choosing their career rather than the need to satisfy the concerns of a professional collective. The self orientation pattern variable is integrative and can be applied to the overall physician orientation that is the composite of the other pattern variables.

Value Orientation

The two pairs of pattern variables that focus upon value orientation are universalism-particularism and ascription-achievement. These variables were important in assessing the physicians’ orientation toward the norms of the medical profession

(universalism vs. particularism) and the physicians' orientation toward goals (ascription vs. achievement). Each of the pattern variable dichotomies could be assessed during the course of the physicians' interviews.

Universalism vs. Particularism.

All of the physician interviews were assessed based upon whether they had an orientation that would be considered universalism or particularism. This value orientation focuses upon the physicians' expectations of their profession. Universalism focuses upon the physicians' maintenance of impartiality toward their patients' health care needs without considerations about personal relationships or belonging to particular groups. All of the interviewed physicians' had a universal orientation.

The identification of the universal orientation expressed by the physicians was based upon their view that as a professional group, physicians have a uniform value system or a uniform perspective about physicians' professional role. Each of the physicians expressed that physicians, as a professional group, were interested in and valued taking care of people who were ill. While this ideal was expressed in varying ways, there was a uniform expression of this perspective. One of the physicians stated, "... there is a sense of wanting to help people." Another physician noted, "I always sort of saw myself as doing something where I was helping people. I always ... thought that it would be ... medicine". Another physician expressed the universal nature of this professional value by stating, "I think that all doctors want to help people." A personal childhood experience of one of the physicians resulted in the idea that physicians care for

those who are ill. He noted that, "... when I was younger I wanted to be a pediatrician. [When] you're sick and you go to the pediatrician ...they make you feel better... And [being a physician] is associated with making people feel better." The image of a profession with uniform values and mode of functioning was formed by one of the physicians when she was considering her career choice. She stated, "I just loved being around doctors and the way they used information to take care of patients." One physician expressed his perception that physicians had a value orientation that was universal when he stated, "I feel that ... being a doctor and helping people who are sick and taking care of the sick ... [is the] ultimate goal, [an] altruistic goal, [one of] the noblest of callings."

Achievement-Ascription.

All of the physicians expressed a professional value orientation that was an achievement orientation. Each physician noted that a career as a physician was based upon hard work and academic achievement rather than based upon their social status or membership group.

The uniform perception that physicians' value achievement was expressed in a statement by one physician when discussing her choice to pursue a career as a physician. She noted, "I did well in school." Another physician stated that, "I was interested in science and biology. And I was good at it." A third physician similarly stated, "I liked science and worked hard." One of the physicians, when describing his academic evolution, reported "... I started to focus on my studies more and I started to become the first in the class. ... I think that this is when the spark of wanting to become a doctor

started.” He noted that when he decided to become a doctor, “...everything was focused. Like I had to be the first in my class, and I was.” Similarly, one of the physicians noted that, “It seem[ed] natural to do medicine to couple my interest [and] academic strengths...” This achievement focus appeared to be the foundation upon which subsequent professional expectations were based. One of the doctors noted that internship was “such hard work.” Nearing the completion of her residency training, the physician noted that “I’m concentrating on the boards”. Board certification is a desired, but not universal, academic achievement for physicians who have completed residency training. When discussing her professional goals, another physician stated, “...being a critical care physician means that you have to work very hard.” None of the physicians appeared to have an ascription orientation that would emphasize the attainment of professional goals based upon the physician’s status.

Motivational Orientation

The two pairs of pattern variables that are focused upon motivational orientation, specificity-diffuseness and affectivity- affective neutrality, could be identified during the course of the physicians’ interviews. These pattern variables focused upon physicians’ orientation when providing care to their patients. Similar to the other pattern variables, these pattern variables were important in analyzing the physicians’ perspective on their professional roles.

Specificity-Diffuseness.

The interviews suggest that the physicians had similar orientation in the specificity-diffuseness pattern variable dichotomy when discussing health care delivery. All of the physicians offered information that suggested a specificity orientation. The identification of a specificity orientation was based upon the physicians' statements that they focused upon the individual when delivering care.

Each of the physicians perceived that their interactions with each patient were based upon information that was specific for that patient. In reviewing the medical records of the randomly selected patients, the physicians discussed the patient's medical care and uniformly offered information that suggested that the medical care and patient interaction was tailored to the patient.

One of the physicians noted that when caring for her patients she felt that she could effect change when caring for them because she knew them. She noted, "I try to establish a comfortable relationship with each patient." Another physician noted that with the patients that he cares for in the ambulatory care clinic, "You have more communication... you are more familiar". Each of these physicians noted that their interaction with their patients is based upon issues specific to the patient. In delivering medical care to patients, another physician stated, "There are patients that I don't even have to look at the chart anymore. I remember their problems... I feel like (I get) to know those people on a different level." One physician expressed that he could "individualize [the care] of each patient". A physician expressed his specificity orientation when he described the care of his patients by stating, "...I treat every patient ... based on... his or her expectations, how they are." Another physician said, "If [I see] a

brand new patient, I get a kind of feel about how the patient is [and] exactly what they are all about.” When reviewing medical information about a patient, one of the physicians explained, “I think that my interaction with her is easier because I’ve known her for a long time, seen her more often than a lot of my other patients. She has required more intensive care and follow-up.” Each of these statements is an example of the physician having a specific orientation toward their patients when delivering care.

Affectivity and Affective Neutrality.

The interviewed physicians’ motivational orientation assessing the affectivity and affective neutrality dichotomy varied. Four of the physicians expressed an affectivity orientation when describing the desire or the ability to develop relationships with their patients. These physicians expressed the attainment of personal gratification and/or pleasure from their patient relationships. One of the physicians, in describing her relationship with some of her patients, she noted “...it’s almost close to a friendship.” Another physician, when talking about the patients that he cares for in the ambulatory care clinic, stated, “I enjoy it. I mean, that’s what I like.” When reviewing information about a patient, the physician noted, “I like him.” When discussing her role as a physician, another physician stated, “I love people and I’m attract[ed] to people and I am very, very social.” She subsequently noted, “I have such a good rapport with my patients.” The fourth physician’s affectivity orientation was noted when she was describing her relationship with a randomly selected patient, “I think that now he identifies me as his doctor and that just makes me feel good.” She continued by stating, “I feel like he’s a little fatherly figure.” In concluding her discussion about the patient,

she noted, "... Most everybody I like. But ... I really, really like him." These physicians were not impartial in their relationships with their patients. Each of the physicians gained personal satisfaction and gratification from their patient interactions.

Two of the physicians expressed a motivational orientation of affective neutrality in their relationships with their patients. These physicians did not express feelings about their relationships with the patients they cared for in the ambulatory care clinic or in the discussion about the randomly selected patient. One of the physicians repeatedly described the manner in which patients responded to him, but did not describe personal feelings toward his patients. He noted that, "Some patients are coming in, criticizing you or evaluating you all the time you are in there. Like waiting, how can I sue him or how bad is he instead of how good is he?" The other physician who had an affective neutrality orientation referred to his patients based on their illnesses without expressing his feelings about the patient interaction. He described the patients that he cared for in the ambulatory care clinic as, "...a great population with different illnesses and pathology and how people present." He also noted that, "...what the patient presents with, translate it into its pathophysiology and then make the diagnosis. And that's [the] exciting part, making the diagnosis." Similarly, this physician delivered individualized care, but did not develop an orientation of affectivity in his patient relationships.

There were two physicians who, during the course of their interview, expressed an affectivity orientation and an affective neutrality orientation in their discussions about their patients. Interestingly, identification of the different pattern variable orientations was dependent upon the specific issue that was discussed. One of the physicians reported that, when caring for patients in the ambulatory care clinic, "you can build up a

relationship... you get to know the person and get to know their whole history...so there is more enjoyment in that than just seeing scattered people who just come in and out.” He expressed that he obtained personal gratification when interacting with patients. However, he subsequently described his view of a ‘relationship’. He stated, “Something happens, we take care of it and he comes back to see me. I think that my relationship with him is good.” In comparing his responses to physicians with a clear affectivity orientation, this physician describes affectivity, but interacts with his patients with an affective neutrality orientation. The other physician who expressed affectivity and affective neutrality orientations noted that when taking care of his favorite patients, it was similar to “talking to a friend”. However, he noted that using e-mail to communicate with his patients was “impersonal enough ... it’s not ... like someone’s invading my personal space”. When discussing his relationship with a randomly selected patient, for whom he delivered medical care, he noted, “There was nothing really striking in our relationship.”

Interaction of Value Orientation Components

All of the physicians interviewed in this study had a universalistic achievement pattern. (See Chapter 2, Table 4) The physicians had a uniform professional value orientation and placed emphasis upon goal attainment through hard work and academic achievement. This value orientation combination places emphasis on universally defined goal achievement and the expectation that achievement occurs in accordance with accepted values and standards. The integration of the value orientation components did

not offer information that gave insight into the basis for differential delivery of medical services.

Integration of Value and Motivational Orientation Patterns

An analysis of interpersonal interactions using Parsons' pattern variables requires that there is an evaluation of behavioral patterns in the context of the functional issues of the social system. Enhanced understanding of physician-patient interaction necessitates the integration of the value and motivational orientations.

The universalistic achievement pattern orientation was integrated with the motivational orientations. An assessment of physicians' motivational orientations revealed that all of the physicians had a specificity orientation. However, the physicians differed in their affectivity-affective neutrality orientation. Physicians with the universalistic-achievement value orientation who had specificity and affectivity motivational orientations had specific orientations toward their patients when delivering health care and an affective orientation in their relationships with patients. Following the interpretation of interview data, it was determined that all of the physicians with this pattern of orientations adhered to colorectal cancer screening guidelines. Parsons (1951) noted that individuals with universalistic-achievement value orientation and specificity-affectivity motivational orientation have an expectation of affective expressions toward a specific class of objects designated on the basis of achievement. (Parsons, 1951) The physicians with this combination of value and motivational pattern variable orientations had affective expressions toward their patients and attained personal gratification from their relationships with their patients in their role as an achievement-oriented physician.

Physicians with the universalistic-achievement value orientation who had specificity and affective neutrality orientations had specific orientations toward their patients when delivering health care, but expressed neutrality or impartiality in their relationships with patients. It was determined that the two physicians with this pattern variable orientation did not adhere to colorectal cancer screening guidelines. Additionally, there were 2 physicians who expressed an affectivity orientation when describing their desired relationships or interactions with patients. However, when reviewing their care toward a specific patient, they expressed an affective neutrality orientation. Both of these physicians did not adhere to colorectal cancer screening guidelines. Parsons (1951) noted that individuals with the universalistic-achievement value orientation and a specificity-affective neutrality motivational orientation had an expectation of specific disciplined action toward a specific class of objects designated on the basis of achievement. The physicians with this combination of value and motivational pattern variable orientation had expectations of neutral, disciplined expressions without the expectation of attaining personal gratification from their relationships with their patients in the context of their role as an achievement-oriented physician.

Summary of Phase II: Qualitative Analysis

The semi-structured interviews revealed that the physicians had an integrative pattern variable that could be identified as self-orientation. This orientation pattern was notable when the physicians' reported that personal interests were paramount in their decision to pursue a medical career or in their internal medicine specialty career choice.

This self-orientation pattern variable could be integrated into the physicians' value and motivational orientations.

The pattern variables that represent a value orientation are universalism-particularism and ascription-achievement. These variables were important in assessing the physicians' orientation toward the professional norms (universalism-particularism) and the physicians' orientation toward goals (ascription-achievement). All of the physicians offered information during their interviews that revealed a universal orientation. The physicians reported a uniform professional value system or a uniform perspective about physicians' professional role. Additionally, all of the physicians expressed a professional orientation that was based upon achievement.

The motivational pattern variables are specificity-diffuseness and affectivity-affective neutrality. All of the physicians offered information in their interviews that revealed a specificity orientation pattern. The physicians perceived that their interactions with their patients were based upon information that was specific for each patient. However the physicians differed in the affective –affective neutrality pattern variable orientation. Four of the physicians had an affective orientation that resulted in the physicians receiving personal gratification and /or pleasure through their interactions with their patients. The four physicians that had an affective neutrality orientation toward their patients did not receive personal satisfaction and did not express pleasure through their patient interaction.

Chapter 5 will review the results of the study as it is related to the existing literature. Additionally, clinical, residency training and institutional implications based

upon the results of this study are offered.

CHAPTER 5

CONCLUSION

There is a significant disparity in the health status of African-Americans and whites in the United States (Clayton & Byrd, 2001; Braun, 2002). A substantial amount of evidence has demonstrated that the difference in health status is associated with increased morbidity and mortality in African-Americans (Petersen, 2002). Compared to all ethnic groups in the United States, African-Americans have the poorest health status indicators with high infant mortality rates (Board of Trustees of AMA, 1995; Kvale, Cronk, Glysck & Aronson, 2000; Hogan, Njoroge, Durant & Ferre, 2001) and shorter life expectancies (Woolhandler et al, 1985; US Department of Health and Human Services, 1991; National Center for Health Statistics, 1996; Williams, 1999). African-Americans have higher rates of chronic conditions, as well as, higher death rates from heart disease, stroke and cancer when compared to white Americans. For every major cancer site, African-Americans are less likely than whites to have localized cancer at the time of diagnosis and are more likely to die from the malignancy (Angell, 1993; Hurowitz, 1993; Kaplan & Keil, 1993; Pappas, Queen, Haden & Fisher, 1993; Pappas, 1994; Anderson & Armstead, 1995; Mustard & Frohlich, 1995; National Center for Health Statistics, 1995).

Colorectal cancer causes significant morbidity and mortality in African-Americans. The incidence rate of colorectal cancer is highest among African-Americans compared to any other ethnic groups (McMahon Jr. et al, 1999; Greenlee, Hill-Harmon, Murray & Thun, 2001; Marcella & Miller, 2001; Mokeba & Srinivasan, 2002). In

addition, African-Americans have high mortality rates from colorectal cancer with significantly poorer 5-year survival when compared to whites (Carethers, 1999; McMahon Jr. et al, 1999; Mokeba & Srinivasan, 2002). Research has suggested that socioeconomic factors may account for a component of the excess deaths from colorectal cancer (Carethers, 1999; Hegarty, Burchett, Gold & Cohen, 2000; Mokeba & Srinivasan, 2002). However, socioeconomic factors, general health status, tumor characteristics and general patterns of treatment do not appear to completely explain the survival disadvantage that is present among African-Americans with colorectal cancer (Mayberry et al., 1995; Carethers, 1999; Dignam et al, 1999; Marcella & Miller, 2001). There has been speculation that the delivery of colorectal cancer screening services may be among the contributing factors for the excess colorectal cancer mortality in African-Americans (Mokeba & Srinivasan, 2002). However, there have been limited studies that have evaluated colorectal cancer screening in African-Americans (Escarce, Epstein, Colby & Schwarz, 1993; Hoffman-Goetz, Breen & Meissner 1998; Borum, 1999; McMahon Jr. et al, 1999; Hegarty, Burchett, Gold & Cohen, 2000).

The goal of this study was to evaluate colorectal cancer screening practices by physicians and to assess the potential impact of patient race. In this study the adherence to colorectal cancer screening recommendations in African-American and white patients by internal medicine resident physicians was evaluated. Phase I of this investigation involved the review of medical records to determine physician practices. In Phase II of this investigation semi-structured interviews were conducted to determine the role that physicians' integrative, value and motivational orientations had in adherence to colorectal cancer screening guidelines. The results of this study are reviewed with a discussion of

the manner in which the potential methodological limitations may impact upon the findings. Implications and correlation of the findings with the literature are also offered.

Phase I:

Review of Results and Discussion of Potential Methodological Limitations

This study revealed that internal medicine resident physicians inconsistently adhered to colorectal cancer screening guidelines. A retrospective review of medical records revealed that African-American patients received significantly less colorectal cancer screening tests than white patients. The differences in the receipt of services in African-Americans could not be explained by patient gender, patient age or physician gender. While there are limited studies that have evaluated the impact of patient race upon colorectal cancer screening, the findings of this study are supported by the few previous studies that have been conducted (Escarce, Epstein, Colby & Schwarz, 1993; Hoffman-Goetz, Breen & Meissner, 1998; McMahon Jr. et al, 1999; Hegarty, Burchett, Gold & Cohen, 2000). An earlier study that did not demonstrate a significant difference in the rate at which colorectal cancer screening was performed in African-American and white patients had overall poor adherence to colorectal cancer screening guidelines, limiting the ability to determine if patient race had an influence upon physician practices (Borum, 1999).

Retrospective reviews of medical records have potential limitations as a tool to assess physician practice patterns because it relies solely on physician documentation. It has been speculated that a patient's medical record may not fully reflect all of the counseling and recommendations offered to the patient by the physician. However, it is a

professional expectation that important aspects of health care delivery are documented in the medical record. Retrospective chart reviews are, therefore, an accepted method of evaluating physicians' practice patterns (Abramson, 1990; Thomas, Studdert & Brennan, 2002). In this study, by evaluating the practice patterns of internal medicine resident physicians', the potential limitations of a retrospective medical record review were minimized. All of internal medicine resident physicians at George Washington University are required, by departmental guidelines, to document all aspects of their health care delivery in the medical record. It was expected that all of the resident physicians' colorectal cancer screening recommendations and practices were documented in the medical record. It is, therefore, accepted that the absence of medical record documentation reflects the lack of physician adherence to colorectal cancer screening guidelines.

The resident physicians whose medical records were evaluated in this study were in their second and third year of post-graduate training. Since the resident physicians were at different stages in their postgraduate training, there was the concern that the physicians who were more advanced in their post-graduate training had a greater fund of medical knowledge and experience in caring for patients. The differences in knowledge and experience had the potential to influence the physicians' adherence to colorectal cancer screening guidelines. However, all of the internal medicine resident physicians at George Washington University received the same written and verbal information about preventive health care and there were the same expectations for the delivery of medical care to their patients. The variance in resident physicians' colorectal cancer screening practices did not correlate with the differences in their supervising faculty physicians.

While the races of the internal medicine resident physicians were varied, the majority (85%) of the physicians were self-identified as white. There were a limited number of nonwhite physicians, with 2% identified as African-American, 11% as Asian and 2% as Hispanic. The relative lack of variance in the physician race did not allow for an assessment of the impact of physician race upon adherence to colorectal cancer screening guidelines or the effect of the interaction of physician and patient race upon physician practice patterns.

In addition, the medical records of patients cared for by internal medicine resident physicians had the potential to be a biased sample. If patients were assigned to internal medicine resident physicians based upon clinical or demographic status that differed from the patients cared for by faculty physicians, it is possible that the patient sample would not be representative of the patient population cared for at George Washington University. Different patient populations may differ in their compliance with physician preventive care recommendations. However, the patients seen in the ambulatory care center by internal medicine resident physicians were randomly assigned to their physicians based upon the patient's appointment time request and the patient's convenience. Therefore, the medical records of the patients evaluated in this sample were reflective of the patient population seen at George Washington University and was not a biased population based upon the assignment to an internal medicine resident physician.

It is possible that physicians' clinical practice and a patients' compliance with recommendations are influenced by a patient's insurance status and the insurance reimbursement of recommended procedures. However, in this investigation all of the patients seen by the internal medicine resident physicians had health insurance coverage.

All of the insurance carriers reimbursed for colorectal cancer screening, eliminating insurance reimbursement as a potential confounding factor in this investigation.

The quantitative component (Phase I) of this study revealed that significant disparities exist in the delivery of preventive colorectal cancer screening services to African-Americans and whites. However, the basis of this disparity in health care delivery is unclear. The qualitative component (Phase II) of this study evaluated the potential relationship between physicians' pattern variable orientation and practice patterns.

Phase II:

Review of Results and Discussion of Potential Methodological Limitations

The qualitative component of this study was based upon Talcott Parsons' theory of social action. In Parsons' theory, the social action of an individual involves decision-making by actors that influence interaction in effort to achieve goals within the context of the circumstances (Parsons, 1937). Parsons viewed social interaction as complex interactive forces that include individuals' integrative, value and motivational orientations. Parsons developed a systematic scheme that allowed for the evaluation of patterned interactions within specific situations (Parsons, 1951).

Evaluation of physicians' health care delivery using pattern variable analysis offered an opportunity to evaluate a core element of interaction within a social system. While it is recognized that individuals can be a composite of varying roles, a specific role can be extracted and analyzed separately (Parsons, 1951). The individuals in this study were evaluated on the basis of their role as a physician. Parsons noted that physicians

have specialized roles within a medical system and strong professional traditions which make them an appropriate group for study (Parsons, 1957). In addition, physicians are easily distinguished from other members within the medical system because of their unique education, technical training and responsibilities. In the medical system, physicians have expectations and patterns of behavior that are bounded within the institutional structure. Evaluation of physicians as a group is possible because physicians have a specified role within the medical system and, therefore, can be viewed as a collective (Parsons, 1951, 1957).

This study evaluated internal medicine resident physicians' integrative, value and motivational orientations using semi-structured interviews. The focus upon pattern variable analysis offered insight into physicians' perspective about their professional role and the relationship of their pattern variable orientations with the adherence to colorectal cancer screening guidelines. All of the physicians had an integrative pattern variable orientation of self rather than collective. In assessing Parsons' value orientation dichotomies of universalism-particularism and achievement-ascription, the physicians were found to have a uniform value orientation pattern. The value orientation identified during the interviews was a universalistic achievement pattern. This pattern reflected the physicians' perspective that there are universally accepted values and norms and an emphasis upon goal attainment through hard work and academic achievement within the profession. This is consistent with Parsons' speculation that physicians have strong professional traditions (Parsons, 1957). Parsons also speculated that self orientation, the integrative pattern variable, correlated with individual's who had a universalistic

achievement value orientation (Parsons, 1951). This study identified this combination of pattern variables in the interviewed physicians.

The interviews revealed a variance in physicians' motivational orientation dichotomies. All of the physicians had a motivational orientation that reflected specificity when discussing the delivery of medical services during the interviews. This is consistent with Parsons' perspective that physicians' have a specificity orientation by delivering individualized care to their patients (Parsons, 1951). Physicians perceived that their interaction with a patient is based upon that individual's health care needs. However, the physicians differed in their motivational orientation dichotomy of affectivity- affective neutrality. The physicians who adhered to screening guidelines for colorectal cancer had a motivational orientation that reflected affectivity. The physicians who had an affectivity orientation developed relationships with patients that resulted in the physician achieving gratification from their interaction with patients. Whereas, physicians who did not adhere to screening guidelines for colorectal cancer had a motivational orientation that reflected affective neutrality. Physicians who had an affective neutrality orientation were impartial in their interaction with their patients and did not express the development of a patient relationship that resulted in personal gratification. The physicians who expressed an affectivity orientation, but interacted with an affective neutrality were describing their interaction with an African-American patient. The difference in the affectivity–affective neutrality dimension was critical because it correlated with physicians' adherence or lack of adherence to colorectal cancer screening practices.

The physicians' pattern variable orientations identified in this investigation are highlighted in Table 20. No other orientation category emerged during the semi-

structured interviews. The variance in the affectivity and affective-neutrality dichotomy differed from Parsons' evaluation of physicians. Parsons noted that physicians had an affective neutrality in their interaction with patients (Parsons, 1951). The difference in the findings of these investigations is likely a result of societal, institutional and professional changes that have occurred in the 50 years between the investigations.

Table 20

Physicians' Pattern Variable Orientations	
<i>Orientation</i>	
Integrative	Self , Collective
Value	Universalism , Particularism Achievement , Ascription
Motivational	Specificity , Diffuseness Affectivity : adherence to guidelines Affective Neutrality : lack of adherence to guidelines

There are potential limitations related to the ability of these semi-structured interviews to assess physicians' pattern variable orientation. There were a limited number of physicians who were interviewed in this investigation. However, the medical records of the physicians were randomly selected to eliminate selection bias. Additionally, the internal medical resident physicians' orientations may not reflect the orientation patterns of physicians who have completed their residency training, physicians who have more experience in health care delivery or physicians of different specialties. However, credibility of the interpretation of the data was confirmed when orientation patterns emerged that allowed for consistent categorization of the information. Identification of

resident physicians' orientations in this investigation offered important insight into physicians' perspectives regarding the profession and health care delivery.

Implications and Correlation with Existing Literature

This study is unique in that it evaluated the impact of patient race upon colorectal cancer screening. The results have implications related to clinical outcomes, residency training and institutional influences upon physicians' behavior. These potential implications are discussed.

Clinical Outcomes

This study revealed a racial disparity in the delivery of health care to African-Americans compared to whites. Previous studies have demonstrated that racial differences in the access to medical care (Blendon, Aiken, Freeman & Corey, 1989; Weissman, Stern, Fielding & Epstein, 1991; Phillips et al, 1996), the receipt of preventive medical care (Gornick, 1999), the utilization of specific procedures (Wenneker & Epstein, 1989; Ayanian, Udvarhelyi, Gatsonis, Pashis & Epstein 1993; Tunis, Bass, Klag & Steinberg, 1993; Phillips et al, 1996), subspecialty consultation (Phillips et al, 1996), the management of acute conditions (Johnson, Lee, Cook, Rouan, & Goldman, 1993; Phillips et al, 1996) and intervention for life-threatening conditions (Satariano, Swanson & Moll, 1992; Phillips et al, 1996) exist. This study was unable to evaluate the potential effect of patients initiating the discussion or the scheduling of colorectal cancer screening tests. However, the results of this study are consistent with the other investigations that

have demonstrated differences in the delivery of care based upon whether the patient is African-American or white.

This investigation is important for a number of reasons. The racial disparity in physicians' colorectal cancer screening between African-Americans and whites has implications related to patients' clinical outcomes. It has been suggested that the increased colorectal cancer morbidity and mortality in African-Americans compared to whites may result from more advanced stages of disease at the time of diagnosis (McMahon Jr. et al, 1999; Marcella & Miller, 2001, Mokeba & Srinivasan, 2002). Socioeconomic factors, including education, income and health insurance status, have been reported to be related to a delay in medical care (Mokeba & Srinivasan, 2002) and significantly greater colorectal cancer morbidity and mortality among African-Americans (Hegarty, Burchett, Gold & Cohen, 2000). While socioeconomic factors can account for a proportion of the excess colorectal cancer deaths in African-Americans, racial differences in mortality have not been completely explained by socioeconomic factors (Mayberry et al., 1995; Carethers, 1999; Dignam et al, 1999; Marcella & Miller, 2001).

This study revealed that African-Americans compared to whites receive less colorectal cancer screening services. Strategies for colorectal cancer screening have been developed and have been found to be cost-effective in decreasing colorectal cancer morbidity and mortality (Eddy et al, 1987; Lieberman, 1995; US Preventive Care Task Force, 1996). However, there have been few studies that have compared colorectal cancer screening in African-Americans and whites (Escarce, Epstein, Colby & Schwarz, 1993; Hoffman-Goetz, Breen, Meissner, 1998; Borum, 1999; Hegarty, Burchett, Gold & Cohen, 2000; McMahon Jr. et al, 2000). The limited research that has been conducted on

the effect of patient race upon colorectal cancer screening has revealed that colorectal cancer screening tests, including screening sigmoidoscopies (Escarce, Epstein, Colby & Schwarz, 1993; McMahon Jr. et al, 1999) and colonoscopies (McMahon Jr. et al, 1999), are performed less often in African-Americans (Escarce, Epstein, Colby & Schwarz, 1993; McMahon Jr. et al, 1999; Hegarty, Burchett, Gold & Cohen, 2000). The single published study that demonstrated no significant difference in the performance of colorectal cancer screening between African-American and white patients had poor overall physician adherence to colorectal cancer screening guidelines preventing the ability to evaluate the impact of patient race upon physicians' adherence to colorectal cancer screening guidelines (Borum, 1999).

This study supports the existing research that has demonstrated a racial disparity in colorectal cancer screening in African-Americans compared to whites. The results of this study imply that the significant morbidity and poorer mortality from colorectal cancer in African-Americans compared to whites may be the result of differences in health insurance status, health care access, intervention, as well as, differences in physician adherence to recommended colorectal cancer screening guidelines. It can be speculated that if racial equity in colorectal cancer screening is achieved, then a decrease morbidity and mortality in African-Americans can occur from early detection of colorectal cancer and pre-cancerous lesions allowing for effective intervention.

Residency Education

The results of this study have implications about physicians' postgraduate training and equitable delivery of health care. There have been few studies that have focused upon

the practice patterns of physicians in their residency training (Lynch & Prout, 1986; Robie, 1988; Schreiner, Petrusa, Rettie & Kluge, 1988; Wheat, Kunitz & Fisher, 1990; Struewing, Pape & Snow, 1991; Evans et al, 1996; Wong, Hollenberg & Charlson, 1996; Ockene, Wheeler, Adams, Hurley & Hebert, 1997; Cardoza et al, 1998; Holmboe, Scranton, Sumption & Hawkins, 1998; Bernard, Anderson, Cook & Phillips, 1999; Borum, 1996a, 1996b, 1997a, 1997b, 1999, 2000; Zack, DiBaise, Quigley & Roy, 2001). There are even fewer studies that have evaluated the cancer screening practices of resident physicians (Schreiner, Petrusa, Rettie & Kluge, 1988; Struewing, Pape & Snow, 1991; Wong, Hollenberg & Charlson, 1996; Borum, 1997c; Cardoza et al, 1998). Additionally, studies have demonstrated that physicians who have completed their residency training inconsistently adhere to colorectal cancer screening guidelines (Cohen, Littenberg, Wetzel & Neuhauser, 1982; Dietrich & Goldberg, 1984; McPhee, Richard & Solkowitz, 1986; Romm, Fletcher & Hulka, 1981; Woo, Woo, Cook, Weisberg & Goldman, 1985; Schroy 3rd et al, 2001). Since resident physicians' practice patterns can be the foundation of their future practice patterns, inconsistent or inappropriate delivery of health care services should be identified and improved prior to completion of postgraduate training in effort to ensure adherence to published guidelines and eliminate health care disparities.

This study is important because it focuses upon colorectal cancer screening by resident physicians. The information in this study offers the opportunity to develop educational initiatives to improve post-graduate training of resident physicians. The findings in this investigation are supportive of the previous efforts and recommendations made to improve resident physicians' education about cancer screening guidelines

(Schreiner, Petrusa, Rettie & Kluge, 1988; Struewing, Pape & Snow, 1991; Wong, Hollenberg & Charlson, 1996; Borum, 1997c; Cardoza et al, 1998). Prior studies have suggested that the type of ambulatory care training can impact upon adherence to cancer screening guidelines (Borum, 1997a). Inadequate screening practices have been reported to be the result of deficient knowledge and limited reinforcement (Romm, Fletcher & Hulka, 1981; Woo, Woo, Cook, Weisberg & Goldman, 1985; McPhee, Richard & Solkowitz, 1986; Robie, 1988; Schreiner, Petrusa, Rettie & Kluge, 1988). However, a recent study suggested that inadequate colorectal cancer screening practices by internal medicine resident physicians were not entirely the result of inadequate knowledge, but may represent a discrepancy between perceived and actual implementation (Zack, 2001). Additionally, a variety of educational techniques have been recommended to improve compliance with screening guidelines. The educational techniques that have been recommended for implementation in residency training programs include increased ambulatory care experience, frequent didactic sessions with reinforcement of surveillance guidelines and systematic charting requirements to improve physician adherence to cancer screening recommendations (Borum, 1996a, 1997a, 1997c; Zack, 2001). The inconsistency in adherence to colorectal cancer screening by resident physicians found in this investigation supports the need for the implementation of educational initiatives within the postgraduate training program.

An additional issue has been raised by the results of this study. This issue is related to the distinct disparity in the delivery of health care based upon patient race. Multivariate analysis demonstrated that patient race was the only factor in this investigation that influenced colorectal cancer screening by the internal medicine resident

physicians. The limited variance in physician race in this investigation did not allow for evaluation of physician race upon practice patterns. There are few studies that have assessed the potential impact of physician race upon health care delivery. (Cooper-Patrick et al, 1999; Murray-Garcia, Garcia, Schembri & Guerra, 2001; McKinlay, Lin, Freund & Moskowitz, 2002) Studies have suggested that there is increased patient satisfaction with physicians' communication style when African-American patients had racial concordance with their physicians (Cooper-Patrick et al, 1999) and that African-American physicians had more race-concordant visits by patients than race-discordant visits (Murray-Garcia, Garcia, Schembri & Guerra, 2001). A recent experimental study noted that patient characteristics, including race, did not influence physicians' diagnosis or diagnostic testing for certain disorders. However, physicians' race, age and specialty interactively, not independently, influenced decision-making (McKinlay, Lin, Freund & Moskowitz, 2002). This experiment did not evaluate diagnostic testing for cancer or adherence to preventive care guidelines.

Physician orientation, evaluated by Parsons' pattern variables, influenced physician behavior in the delivery of colorectal cancer screening practices. Understanding the correlation between physician perspectives and the delivery of health care will allow for the development of interventions in residency training that can improve physicians' health care delivery. Focused programs during residency that address the motivational orientation of affectivity and affective neutrality in relation to patient interaction have the potential to decrease the differences in physicians' delivery of health care. While educational initiatives during residency training should include strategies that focus upon physician knowledge, ambulatory care experience, systematic

documentation in the medical record and reinforcement of guidelines, critical to addressing the distinct racial disparity that persists in the delivery of health care are the development of programs that emphasize racial sensitivity and the importance of equality in medical care. These programs should include pre-intervention and post-intervention assessments to determine effectiveness, as well as, reinforcement to sustain any improvement in health care delivery.

Institutional Influences

The disparity in health and the differences in the delivery of medical care between African-American and whites in the United States (Woolhandler et al, 1985; Blendon, Aiken, Freeman & Corey, 1989; Council on Ethical and Judicial Affairs of AMA, 1990; U.S. Department of Health and Human Services, 1991; Weissman, Stern, Fielding & Epstein, 1991; Elixhauser, Harris & Coffey, 1994; Kahn et al, 1994; McBean & Fornick, 1994; Mort, 1994; Pappas, 1994; National Center for Health Statistics, 1996; Phillips et al, 1996; Lee, Gehlbach, Hasmer, Reti & Baker, 1997; CDC, 1998; Fiscella, Franks & Clancy, 1998; Williams, 1999; Kvale, Cronk, Glysch & Aronson, 2000; Braun, 2002; Petersen, 2002) were the basis for evaluating the effect of patient race on colorectal cancer screening. In this investigation, African-American race was the only factor that was significant for not performing colorectal cancer screening. These findings are consistent with the multiple studies that have demonstrated racial disparity in the delivery of various health care services. In addition, this investigation suggests that societal and institutional factors may sustain the racial disparity in health care delivery.

Parsons noted that race has been a moral issue that ultimately resulted in substantial legislative changes within the nation (Parsons, 1965). While institutions incorporated significant policy changes related to racial equality, there has been considerable lag in achieving equity in health care. The idea that African-Americans should receive inferior medical care is incompatible with societal, institutional and professional principles. Nevertheless, racial disparities in health care delivery persist. It is apparent that physicians are not immune to factors that sustain racial inequity. The internalization of societal or institutional influences can result in the differences in health care delivery.

The variance in physicians' pattern variable orientations correlated with the variance in physician adherence to colorectal cancer screening guidelines. The findings of this study are also supported by Coleman, Katz & Menzel (1957) who noted that interpersonal interactions within a medical institution can influence professional decision-making and behavioral patterns. It has also been speculated that physicians' attitudes and values could impact behavioral patterns (Coleman, Katz & Menzel, 1957). Douglas (1986) noted that the patterned interactions of physicians are generally institutionalized and practice patterns can represent sanctioned institutional patterns. However, this study identified differences in medical care delivery based upon a patient's race. This racial disparity in medical care was not an accepted professional norm. In fact, the physicians interviewed in this study reported that they delivered similar health care services in all of their patients.

Other researchers who have evaluated professional and institutional behavior offer theories that support the findings of racial disparity in health care delivery that was

identified in this study. Giddens (1979) noted that behavioral variance can occur as a reflection of static and dynamic components of social interactions within an institution. Schotter (1981) suggests that while institutional values can directly influence behavior, individual perspectives can also alter institutionally endorsed behavior. The interaction between institutional and individual perspectives determines the subsequent behavior of an individual (Schotter, 1981). Additionally, Douglas (1986) noted that while there are institutionally sanctioned patterns of behavior, self-interests, perspectives and expectations can influence personal interactions. It is also possible that the variances in physician behavior and practice patterns may result from differences in the degree of incorporation of institutional expectations (Tolbert & Zucker, 1996).

Institutional efforts should be made to enforce the societal expectations of racial equality in health care. Anthony Giddens (1984) noted that institutions have static, as well as, dynamic components. Vestiges of sanctioned racial inequality may persist within institutions, but the dynamic quality of institutions can support behavioral change. Douglas (1986) noted while deviance from professional expectations can exist, institutions can influence behavior and provide boundaries for interaction. Aspects of physician behavior can be intentionally altered to ensure adherence to professional expectations. This is supported by Barley and Tolbert (1997) who noted that individual behavior can be deliberately altered and can influence institutional modification. Initiatives in residency training that focus upon equitable health care delivery and sensitize physicians to the needs of all patients can result in an improvement in health care delivery. The medical system must explicitly enforce equal health care delivery and

condemn racial inequalities that persist within the medical system to ensure changes that result in an improvement of the health status of African-Americans.

This investigation is important because it provides information about physician practice patterns. The identification of a disparity in health care based upon patient race was a significant finding. The finding of a disparity in the delivery of colorectal cancer screening services based upon patient race can provide the basis for further study and the development of educational initiatives that focus upon the improvement of medical care. Educational interventions within residency training programs can focus upon adherence to health care guidelines. Additionally, strategies can be developed to evaluate and enhance physicians' orientations that correlate with equitable health care delivery.

The uniqueness of this investigation was in the assessment of physicians' orientations and the correlation of these orientations with health care delivery. There has not been a previous study that has utilized the framework of Parsons' pattern variables to evaluate physicians' preventive care practice patterns. It is through an assessment of physicians' perspectives and the influence of these perspectives upon medical care that comprehensive strategies can be developed to influence institutional and professional change that results in the elimination of racial disparities in health and the improvement health care delivery.

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APPENDIX 1**POWER ANALYSIS**

Alpha Level	0.5
Baseline screening	85%
Power	80

To detect a difference of 20% → 96 charts in each population are needed

To detect a difference of 25% → 65 charts in each population are needed

To detect a difference of 30% → 47 charts in each population are needed

Alpha Level	0.5
Baseline screening	85%
Power	90

To detect a difference of 20% → 129 charts in each population are needed

To detect a difference of 25% → 87 charts in each population are needed

To detect a difference of 30% → 63 charts in each population are needed

“Power and Sample Size”, in <http://www.vanderbilt.edu>

APPENDIX 3**Colorectal Cancer Screening Recommendations
American Cancer Society**

The American Cancer Society has recommended that colorectal cancer screening for average risk individuals begin at age 50 years. The screening options include

- Annual fecal occult blood test
- Flexible sigmoidoscopy every 5 years

There is a preference for annual fecal occult blood testing combined with flexible sigmoidoscopy every 5 years.

Or

- Double contrast barium enema every 5 years

Or

- Colonoscopy every 10 years

APPENDIX 4**INTERVIEW GUIDE**

- Can you tell me a little about yourself?
- How do you feel about being in internal medicine?
- How has your experience been when taking care of patients in the ambulatory care center?
- Can you tell me about this patient?
- What was your interaction with this patient like?
- How did you feel about your interaction with this patient?
- How did you feel about the health care activities that you recommended or performed for this patient?
- Can you review some of the information in your patient's chart with me?