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A Synthesized Model of Compliance Based on Physician and Patient Reported Barriers to Hypertension Guidelines

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Abstract

A Synthesized Model of Compliance Based on Physician and Patient Reported Barriers
to Hypertension Guidelines

by

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University of Utah BSN, 1973

Wheaton College MA, 1984

Walden University MSPH, 2008

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

Walden University

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Abstract

Hypertension affects as many as 50-70 million Americans; early and consistent compliance to hypertension guidelines is important to prevent heart attack and stroke, both leading causes of death in the United States. Despite the advances in medicine and health-care technology, the effectiveness with which hypertension is managed at the individual and community level is less than optimal. The research questions in this study addressed the lack of physician compliance to hypertension guidelines and why patients fail to follow guidelines. Improving hypertension management depends on bridging the gap between physician awareness of evidence-based guidelines and patient compliance. Grounded theory was used to understand and integrate the perspectives of a purposeful selection of nine physicians and seven patients regarding barriers to hypertension guidelines compliance. Theoretical perspectives used to frame this research were self-efficacy and the health-belief model for the patient and awareness to adherence and the dissemination model for the physician. Data analysis strategies included open/axial and in-vivo coding to assign and refine themes and discover key concepts. Themes for both physician and patient participants related to methods of compliance, the physician/patient relationship, awareness of theoretical models by both groups, and issues related to patient non-compliance. Eight key recommendations were developed, including: evidence and theory must coexist to increase compliance, health insurance practices must be reformed, and collaboration and communication between physicians and patients must improve. Implications for positive social change included reduced health care costs and improved outcomes for hypertensive patients.

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Dedication

This study is dedicated to my husband and son, and to all the many people in my life that encouraged and supported me during the past 5 years.

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Chapter 1: Introduction

In the 21st century, chronic disease has become the principal threat to human health in the United States (Roger, 2009). Cardiovascular disease (CVD) is the leading cause of death and disability in the US, affecting 80 million Americans or 33.6% of the population (American Heart Association, 2009). Racial and ethnic minorities and individuals of low socioeconomic status are most adversely impacted. That is, 32.5% of Caucasian males and 31.9% of Caucasian females are compared to 42.6% of African American males, 46.6% of African American females, 28.7% of Mexican males, 31.4% of Mexican females, and 20.3% of Hispanic/Latino males and females (American Heart Association, 2008). Empirical evidence supports the theory that treatment of hypertension—a chief modifiable risk factor leading to CVD—can reduce morbidity and mortality associated with CVD (Sisson, Rastegar, Rice, Prokopowicz, & Hughes, 2006). The gap between treatment guidelines, prevention guidelines, clinical practice, and patient compliance is recognized as one of the major challenges facing health-care providers in the quest to reduce the rising toll of CVD (Grover et al., 2008).

Background of the Study

Primary or essential hypertension (in contrast to secondary hypertension caused by another disease entity), was defined in the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of Hypertension (JNC-7) as a systolic (top) measurement greater than 139 and a diastolic (bottom) measurement greater than 89 (Chobanian et al., 2003). Individuals who were normotensive at age 55 (i.e., had blood pressure readings less than 140/90) had a 90% lifetime chance of

developing hypertension (Chobanian et al., 2003). Thirty to 40% of people in the US were unaware that their blood pressure exceeded acceptable levels. Often, excuses such as white coat syndrome (i.e., elevated blood pressure due to the stress of seeing a doctor), were used to delay treatment. Of individuals diagnosed and treated, two thirds did not have their blood pressure controlled to levels under 140/90 (Chobanian et al., 2003). Individuals with hypertension were at greater risk for heart attack, stroke, end-stage renal disease, coronary artery disease, and heart failure (Chobanian, et al., 2003). Blood pressure norms were set in the early 1900s, when hypertension was defined as diastolic and systolic values over 140/90. These norms were based on the fact that 5-10% of the U.S. population had blood pressure readings in that range at that time (Johnson, Feig, Nakagawa, Sanchez-Lozada, & Rodriquez-Iturbe, 2009).

The modern blood pressure cuff (sphygmomanometer) was invented in the early 20th century and provided a more consistent approach to checking blood pressure. The cuff allowed health-care practitioners to refine blood pressure measurements based on multiple studies. It was found that hypertension was primarily a condition observed in the US and Europe, but was extremely rare in Africa, Asia, and the Pacific Islands. Johnson et al. (2009) hypothesized that the rapid and dramatic increase in the prevalence of hypertension in the US—from its near absence in the early 1900s to rates of 30% and more currently—was not the result of a population living longer, but due to a major environmental mechanism, most likely the increase in obesity.

Obesity in the US has grown from 3% in 1900 to over 30% today, and has been shown to impact all the chemical activities of the human body (Johnson et al., 2009). For

example, obesity has been shown to activate the sympathetic nervous system, cause insulin and leptin resistance, endothelial dysfunction, and elevate plasma aldosterone and intrarenal fat accumulation (Johnson et al., 2009). Specific dietary factors, such as the ingestion of high fructose corn syrup, widely used in sodas and processed foods since the 1980s, has paralleled the obesity epidemic and may cause metabolic syndrome, a group of symptoms such as high triglycerides, extra weight around the waist, low HDL (good cholesterol), and insulin resistance (Gaby, 2005). Therefore, lifestyle choices have been identified as playing a critical role in hypertension management.

Hypertension damaged organ systems such as the heart, arterial blood vessels, kidneys, and brain (Horne & Gordon, 2009). Hypertension was a key contributor in the development of CVD because it increased left ventricular workload and left ventricular hypertrophy (Horne & Gordon, 2009). Hypertension also contributed to increased atherosclerotic processes leading to myocardial ischemia or myocardial infarction or heart attack (Horne & Gordon, 2009). Increased morbidity and mortality in cerebrovascular disease was attributable to hypertension, causing decreased cerebral blood flow, vascular occlusions, and weakened blood vessels (Horne & Gordon, 2009). Hypertension also impacted renal blood flow and renal perfusion leading to renal dysfunction and kidney failure (Horne & Gordon, 2009). Johnson et al. (2009) stated that essential hypertension should not simply be defined as an elevation in blood pressure, but a syndrome in which “micro vascular disease and renal involvement are key components” (p. 2).

The cost to the health-care system and society at large for CVD was estimated at \$475.3 billion for both direct and indirect costs in 2009 (American Heart Association, 2009). Inappropriate management of hypertension has contributed significantly to health-care costs (Balu, 2009). Data showed that 36% of identified hypertension patients were inappropriately treated, resulting in a per-person yearly cost of \$234.60, and a national cost of \$13 billion (Balu, 2009).

Researchers to date have failed to determine the most effective educational methods or styles to assist patients in adopting lifestyle changes to address chronic illnesses such as hypertension. Physician teaching styles and how the physician and his or her staff might better comply with guidelines to educate the patient have also been overlooked. Physicians supported the concept of guidelines to manage hypertension, yet studies showed a reluctance to follow published guidelines (Heneghan, Perera, Mant, & Glasziou, 2007). From my observation, another area not widely addressed in the literature was the differences between the medical model of health care versus the public health-care model, which may be better adapted to treat chronic disease prevention and care.

Problem Statement

Despite the guidelines available to physicians to treat hypertension, 28.2% of patients remained undetected and only 35% of identified hypertension patients achieved the recommended blood pressure target of 140/90 or less (Institute of Medicine, 2010). Factors contributing to the low level of control were both patient and physician related (Heneghan et al., 2007). One determinant was physicians' inappropriate implementation

of published hypertension guidelines. In addition, attempts to increase patient compliance through education were largely unsuccessful (Hausman, 2001).

The problem this study addressed is the gap in understanding regarding physicians' reluctance to follow published guidelines and motivating patients toward compliance. Enhanced understanding of patient and physician perceptions of hypertension guidelines and compliance will lead to the development of new or improved theories and models of cooperation and collaboration, which may reduce mortality and decrease the impact of hypertension for all those affected.

Purpose of the Study

Despite advances in medicine and health-care technology, the management of hypertension is less than optimal (Bakris et al., 2008). I used qualitative research based on interviews with both physicians and patients, to understand the feelings, belief systems, and knowledge of participants related to hypertension guidelines compliance. I explored the lack of physician compliance to published guidelines, as well as how guidelines to foster patient compliance can best be translated by the physician to the patient.

An example of patient compliance barriers occurred recently in a community health intervention I conducted in central Illinois. This experience highlighted the need to collect qualitative data from both patients and physicians and synthesize it into a model of hypertension compliance. Patients with a diagnosis of hypertension were invited to attend a seminar with a cardiologist, dietician, and exercise physiologist to discuss the roles of medication compliance, diet, and exercise to control hypertension. An

opportunity to request a follow-up call to discuss barriers to compliance was included on the evaluation form; 10 people out of 55 marked this option. During the follow-up calls, all the patients indicated a desire for a support group to discuss barriers and gain further information. Dietary issues were a main concern. Several patients reported that visits to the dietician were not helpful because the main forms of communications—pamphlets and diet histories—did not address their needs. One patient shared that she did not like to visit her doctor because he yelled at her about her weight. This individual had gone to a hypnotist and a doctor who specialized in weight control as well, but the required blood tests were prohibitively expensive for her. Patients cited various barriers, personal struggles, and communication challenges with their physicians.

Nature of the Study

Qualitative research, based on interviews with both physician and patient participants, was conducted in this study to develop or improve existing models or theories meant to increase compliance to hypertension guidelines by both physicians and patients. An eventual decrease in morbidity and mortality from cardiovascular events caused by hypertension was the outcome goal of the new model of compliance.

Developing theory is the goal of grounded theory research and is a complex activity that requires a set of well-developed and interrelated questions to elicit the what, why, how, when, and where of some phenomenon from participants (Corbin & Strauss, 2008). The researcher's sensitivity to her role as participant is critical in qualitative research, as the data slowly evolves into concepts that are grounded in the empirical evidence. Insights into the data do not "occur haphazardly" (Corbin & Strauss, 2008, p.

32) in a qualitative study, but rather are revealed through the interplay between the data and a “prepared mind” (Corbin & Strauss, 2008, p. 32).

Qualitative interviewing allows the researcher to enter into the participant’s perspective, and begins with the assumption that the participant’s perspective is important, knowable, and precise (Patton, 2002). Research questions in qualitative studies are exploratory in nature, broad, open-ended, and flexible. They ask *what* and *how* questions, rather than *why* questions (Corbin & Strauss, 2008). Patton (2002) described broad categories of interview questions in qualitative research. Chapter 3 provides further details of the broad categories under study in this research and specific questions within each category for both physician and patient.

Conceptual Framework

Grounded theory research goes beyond testing existing theory or providing conceptual descriptions. Rather, grounded theory generates conceptual theory by analyzing findings to interpret, explain, and solve a problem (Cutcliffe, 2005). Various theories contribute to our understanding of the basic social and psychological processes in life. Theories also contribute to patients’ and physicians’ abilities to achieve compliance to hypertension guidelines. Grounded theory research was used for this study because the existing relevant theories (i.e., self-efficacy and health belief theories for the patient; awareness to adherence and dissemination theories for the physician) did not combine the perceptions and experiences of both patients and physicians. Figure 1 illustrates the relationship of existing theories to the development of a new theory using grounded theory methods.

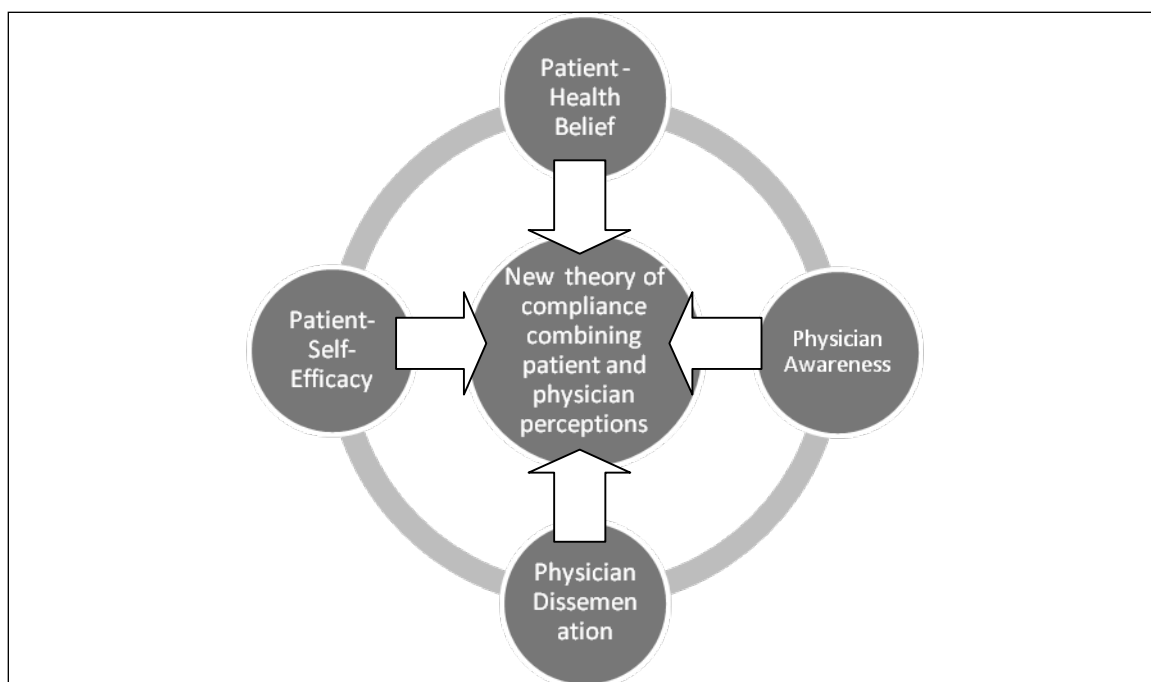


Figure 1. Existing theories of physician and patient compliance contribute to a new theory combining the perspectives of both groups.

Murray-Johnson et al. (2006) stated that researchers have called for the use of theory in guiding health promotion and the evaluation of compliance. However, medical practitioners have often minimized the importance of theory, suggesting that it has little relation to the “real world” (Murray-Johnson et al., 2006, p. 185). In this study, social learning theory/self-efficacy and the health belief theory were reviewed on the patient side. The awareness to adherence model and the dissemination model were reviewed on the physician side.

Social learning theory (SLT), more recently called social cognitive theory, has been used in a wide variety of health intervention efforts, including the prevention of heart disease (Murray-Johnson et al., 2006). Central to SLT was perceived self-efficacy, or what an individual believed about her or his capability or effectiveness in performing a

certain action (Bandura, 1997). Motivation, personal behavior, and social environment all played a role in perceived self-efficacy, which has been described as the driving force of human behavior (Bandura, 1997).

Another important construct of SLT is outcome expectations. For example, a person may believe that a certain action will lead to a particular outcome (outcome expectations), but may doubt his or her ability to perform the action (efficacy expectations). People tended to perform certain behaviors when self-efficacy expectations were high (Murray-Johnson et al., 2006). Self-efficacy expectations varied on dimensions of magnitude (i.e., for simple vs. difficult tasks), generality (i.e., for specific vs. general tasks), and strength (i.e., for weak vs. strong tasks).

According to Bandura (1977), an individual's self-efficacy perceptions were developed from four sources of information: (a) performance accomplishment, (b) physiological states, (c) verbal persuasion, and (d) vicarious experience. Physiological states referred to tactics such as biofeedback, relaxation therapy, or desensitization. Verbal persuasion referred to suggestions or exhortations by others or self-instruction, such as information learned from commercials or pamphlets. Vicarious experience referred to behavior such as exercise demonstrated by another individual (Bandura, 1997).

The health belief theory (HBT), one of the first theories of health behavior (Glanz & Bishop, 2010), was originally designed to explain preventive health behaviors, but has been modified to explain the compliance behavior of individuals with known health conditions (Murray-Johnson et al., 2006). In HBT, current dynamics rather than prior

experiences, were thought to have the greatest impact on an individual's behavior; history played a role in actions only as it represented the present dynamics of that action (Rosenstock, 1974). HBT theorists envisioned individuals living in regions of positive value, regions of negative value, and regions of neutral value. A condition such as hypertension or CVD would be expected to exert a force towards a positive space or a negative space; an individual's compliance to guidelines was conceived as a process of being pulled by the positive forces and repelled by the negative ones (Rosenstock, 1974).

According to HBT, for behaviors supporting hypertension guidelines compliance to occur, an individual needed to believe:

1. He/she was susceptible to the effects of uncontrolled hypertension.
2. The outcomes of uncontrolled hypertension would have a moderate to severe impact on his/her life.
3. Taking a particular action, such as medication compliance or reduced BMI, would be beneficial to his/her life
4. By taking certain steps, he/she would not have to overcome important barriers such as cost, convenience, pain, or embarrassment (Rosenstock, 1974).

In other words, an individual's belief about the effectiveness of the various hypertension guidelines, not the objective facts, determined the course of action he/she would take (Rosenstock, 1974).

Two theoretical frameworks were considered for physician compliance in the design of this study:

1. Dissemination model

2. Adherence model

Although the number of clinical guidelines in medicine continued to grow, little attention was given to the effectiveness of disseminating information to the physician (Freed, Pathman, Conrad, Freeman, & Clark, 1998). Dissemination strategies were thought to be both passive (e.g., distributing printed material), and active (e.g., providing reminders, conducting audits, soliciting feedback, or providing educational meetings to physicians [Medves et al., 2009]).

A complex network of intra and interorganizational factors influenced physician practice, therefore, understanding the organizational context within which a physician functioned was considered helpful to evaluate dissemination effectiveness (Freed et al., 1998). Without compliance feedback data, physicians were often unaware of their success or failure regarding adherence to guidelines (Steinman et al., 2004). Physicians often overestimated their compliance to hypertension guidelines, especially regarding the degree of blood pressure control in their patients (Steinman et al., 2004). This limited awareness of compliance data may have represented a barrier to successful implementation of the guidelines. Physician feedback through data reporting could increase awareness and adherence to guidelines compliance.

Measuring hypertension compliance through quantitative methods produced results that were not always consistent with actual compliance, that is, research results were often better than actual behavior outside an experimental setting (Lachaine, Petrella, Merkle, & Ali, 2008). Qualitative methods offered an advantage in uncovering a new or improved model of compliance based on a better understanding about what took place

from both the physician and patient perspectives in terms of hypertension guidelines compliance. By treating this complex system as a whole that was greater than the sum of its parts, a new theory of compliance became possible (Patton, 2002).

Operational Definitions of Terms

Ancillary health-care workers: Common language referring to pharmacists, nurses, nurse practitioners, medical assistants, or other medical personnel, other than physicians, who deliver care to patients.

Barrier: Something that blocks compliance to health-care guidelines. (Merriam-Webster Collegiate Dictionary, 2008).

BMI (body mass index): A number calculated from a person's weight and height. A BMI over 25 is considered overweight; a BMI over 30 is considered obese (Centers for Disease Control and Prevention, 2011)

Clinical practice guidelines: “A systematically developed statement designed to assist health-care professionals and patients make decisions about appropriate health care for specific clinical circumstances” (Center for Evidence-Based Medicine website, “What is EBM” n. d.).

CVD: The acronym for cardiovascular disease.

Comorbid: Pertaining to a disease that occurs simultaneously with another (Dorland’s Illustrated Medical Dictionary, 2003).

DASH diet: An acronym for dietary approaches to stop hypertension.

Dyslipidemia: Abnormal amounts of lipids and lipoproteins in the blood (Dorland’s Illustrated Medical Dictionary, 2003).

EHR: An acronym for electronic health records.

Evidence-based guidelines: Evidence-based medicine is the conscientious, explicit, and judicious use of current scientific evidence in making decisions about the care of individual patients (Center for Evidence-Based Medicine website, n. d.).

Framingham Risk Assessment Tool: An assessment tool derived from Framingham Heart Study data to predict the risk of developing a myocardial infarction (heart attack) or death from coronary disease within 10 years (www.framinghamheartstudy.org).

Healthy People 2010: A comprehensive, nationwide health promotion and disease prevention agenda (Department of Health and Human Services, 2000).

Hypertension: Blood pressure readings of 140/90 or higher (Dorland's Illustrated Medical Dictionary, 2003).

JNC-7: An acronym referring to the seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure.

Noncompliance: Opposite of compliance. From a nursing science perspective, noncompliance refers to a patient who does not take responsibility for changing his or her lifestyle according to recommendations and does not work collaboratively with a physician and other medical staff to make decisions towards that goal (Kyngäs & Lahdenperä, 1999).

Oxidative stress: Any of various pathologic changes seen in living organisms in response to excessive levels of cytotoxic oxidants and free radicals in the environment (Mosby's Medical Dictionary, n. d.).

Pay for performance: A payment system in which physicians are compensated based on a set of criteria for outcomes in patient quality and cost effectiveness (Boyd et al., 2005).

PCMH: Acronym for patient-centered medical home, a concept in which patients are supported by a team of health care professionals to improve quality of care based on evidence and reduce costs over time (NCQA, 2011).

PHO: An acronym for physician hospital organization, a collaboration of independent physicians for insurance contracting and quality outcomes.

MAXQDA: Software used in qualitative data collection and analysis.

White coat syndrome: A condition characterized by high blood pressure readings in a clinical setting, but normal readings outside the clinical setting (Pierdomenico, Lapenna, DiMascio, & Cuccurullo, 2008).

Assumptions

Human behavior is rarely explained by isolated variables. Rather, the interdependence of variables within the context of culture serves to explain the whole (Patton, 2002). Therefore, one assumption made regarding this research was that forming a new theory of hypertension guidelines compliance must be based on a study of a complex system that was greater than the sum of its parts. It was assumed that the act of taking apart the whole would reveal a new whole that would lead to a new or improved theory of compliance (Patton, 2002). All participants were assumed to be comfortable with me and not inhibited in responding to my interview questions, therefore allowing a comprehensive look at all aspects of the hypertension guidelines compliance issue.

Limitations, Delimitations, and Scope

The study outcomes only address a model of hypertension compliance for the population of patients and physicians participating. It is not known whether concepts and methods may apply to other geographic areas and populations, or to other compliance concerns. I focused on the patient/physician relationship, the willingness of physicians to accept guidelines, and the ability of patients to follow them. In addition the current health system, specifically health insurance, and community involvement were discovered as elements of compliance. Changes in specific behaviors having to do with, for example, exercise or diet were not measured. Access to care was not addressed in this study, even though one patient participant mentioned this.

Current conceptual frameworks for patients, such as social learning theories and health belief patterns, and awareness and dissemination for physicians, were not improved through this research. The new model, however, demonstrated the efficacy of combining theory and evidence. Issues outside the scope of the present study are addressed as additional topics for review and research in Chapter 5.

Significance of the Study

CVD is the leading cause of death and disability in the US, affecting an estimated 80 million American adults over the age of 18 (American Heart Association, 2009). Hypertension is a key contributor to cardiovascular incidents including end stage renal disease. Randomized clinical trials have demonstrated that the treatment of mild-to-moderate hypertension can reduce the risk of stroke by 30% to 43%, and of myocardial infarction by approximately 15% (World Health Organization, 2003). Poor adherence to

compliance guidelines for hypertension can severely compromise the effectiveness of treatment, making noncompliance a critical community health concern from quality of life and health economics perspectives. Health care in the US is shifting to increased prevention, patient responsibility, and physician pay-for-performance. These general changes highlight the need for a more effective model of compliance for the treatment of hypertension.

Results of this study will be included in medical journal articles, residency programs, and provided to practicing physicians to improve the outcomes of patient care. Greater understanding of physician barriers to dissemination and adherence to guidelines will support improved outcomes. Individuals, families, and communities will benefit from increased patient compliance that improves the quality and productivity of lives, and reduces health-care costs. A new model of compliance was formulated through this qualitative research providing insight about changes in the health system, increased communication, understanding and trust between physician and patient, enhanced community involvement, and technological advances that might lead to improved health, both for the individual and the community.

Social Change

In the US and other developed countries, the epidemiological shift toward chronic diseases over the past 50 years means acute care models are no longer adequate to address the health needs of the populations (World Health Organization, 2003). The care needed to manage chronic conditions such as hypertension requires patient self-management, technology for monitoring, and changes in patient lifestyle (World Health

Organization, 2003). Despite evidence that patient-related factors are not the only cause of problems in compliance, provider and health system-related factors that may impact compliance, quality, and outcomes are currently ignored (World Health Organization, 2003). The results of this study reveal the benefits of a stronger commitment to collaboration between physician and patient. In addition, increased understanding of compliance variables for patient and physician will positively impact compliance to hypertension guidelines. The improved model bridges the gap between physician, patient, health system, and community and could increase compliance and improve health outcomes.

Summary

Uncontrolled hypertension increases morbidity and mortality due to CVD and renal failure. In addition, uncontrolled hypertension leading to CVD cost an estimated \$475.3 billion for both direct and indirect costs in 2009 (American Heart Association, 2009). While some of the literature implicated the patient as the source of the noncompliance problem, evidence also suggested that health-care providers played a role in compliance failure. This study generated a new theory of hypertension guidelines compliance by evaluating current barriers to compliance expressed in interviews with physicians and patients.

A review of the relevant literature regarding patient and physician barriers to hypertension compliance is provided in Chapter 2, along with a review of the literature supporting a qualitative approach to this research. The methods used in the research and other details of the research design are discussed in Chapter 3. In Chapter 4, the

recruitment of participants, the analysis process, and the survey results are discussed.

Finally, in Chapter 5, an interpretation of findings, a comparative analysis of patient and physician interviews, the implications for social change, and recommendations for further research and conclusions are provided.

Chapter 2: Literature Review

Introduction

Hypertension is the single most contributory factor in the development of CVD and cerebrovascular disease. Morbidity and mortality associated with hypertension is avoidable (Bakris et al., 2008). Despite the advances in medicine and health-care technology, the efficiency with which hypertension is managed at a community level is less than optimal (Bakris et al., 2008). Improvement in the treatment of hypertension depends on physician awareness of evidence-based guidelines and patient compliance (Bakris et al., 2008). The literature regarding the research design chosen for this study, as well as the literature relating to patient compliance, barriers, and physician compliance issues is reviewed in Chapter 2.

Research Strategy

A review of the literature was conducted through the Cochrane Library, the Thoreau Walden Library virtual catalog, Journal Watch Online, and Mednews Plus, a medical database of peer-reviewed research. These resources were searched for current (2000 to present) articles on physician and patient hypertension guidelines compliance. Several books were reviewed concerning qualitative methodology. Theoretical models impacting compliance by physician and patient were also assessed, as well as texts on long-term therapy compliance and evidence-based medicine. Studies from outside the US provided insight about the hypertension guidelines compliance problem worldwide and possible solutions for the US.

Organization of the Literature Review

This literature review was organized by topic using the following outline: methods, conceptual framework models, physician studies (i.e., dissemination and adherence by physicians to hypertension guidelines, patient partnerships, concordance, and physician pay for performance), and patient compliance studies (i.e., medication compliance, exercise, medical provider partnerships, gender, race, income, educational models, patient efficacy, and health belief models) as they related to hypertension. In addition, the patient centered medical home concept was reviewed as a viable primary care model to assist compliance.

Methods

Three possible designs in grounded theory research have been defined: systematic, emerging, and constructivist (Creswell, 2005). The systematic design, described by Corbin and Strauss (2008), called for specific data analysis steps and was considered the most rigorous. The emerging design, identified by Glaser (1992), as mentioned in Simon (2005), allowed a theory to emerge from the data rather than requiring that data be forced into a mold (Simon, 2005). The constructivist design, identified by Charmaz (2003), focused on “views, values, beliefs, and feelings” (Creswell, 2005, p. 402), and was selected for use in this qualitative study.

In a constructivist design, theory emerges from the researcher’s observations of the real world, rather than from a laboratory or academic setting (Patton, 2002). A constructivist design for this qualitative research was the best choice for my goal, which was to obtain and analyze perceptions, feelings, and knowledge from patient and

physician participants through intensive interviews, then to understand the core values related to compliance or noncompliance. I made every effort to remain neutral about hypertension compliance, with no preconceived ideas or perspectives prior to the research (Patton, 2002). My experiences and insights were then applied to the qualitative data to develop a new model of compliance (Patton, 2002).

The research design for this study was deepened by comparative analysis, the central analytical approach in grounded theory research (Patton, 2002). Comparisons between the physicians' views and the patients' views of hypertension guidelines compliance illuminated the differences that existed and where synthesis might be achieved. Understanding the physician and the patient as a dynamic whole rather than two separate parts was also critical to the research design. Human behavior is rarely impacted or explained by isolated variables, rather, the interdependence of variables in a cultural context serves to explain the whole as a complex system that is greater than the sum of its parts (Patton, 2002). Taking apart the existing whole, then reassembling it into a new whole, provided insight into key aspects of a new model of compliance.

Physician Compliance

A review of the literature about physician compliance to hypertension guidelines focused on three main areas: dissemination of hypertension guidelines, physician awareness and adherence to hypertension guidelines, and the physician's ability to enhance the doctor-patient relationship sufficiently to motivate patients to make changes in lifestyle and medication compliance. A review of the literature about patient compliance to hypertension guidelines focused on motivation to follow physician advice

to make lifestyle changes. Studies generally focused on physician compliance or patient compliance, rarely the combination of the two.

Physician Awareness and Adherence

Standard accepted hypertension guidelines require the physician to know the optimal blood pressure for each patient. Although the standard clinical blood pressure measurement has been 140-160/90-100, this standard has been lowered over the years to levels less than or equal to 135/85, especially for patients with diabetes and chronic kidney disease (Arguedas, Perez, & Wright, 2009). However, physicians and patients may be unclear about when this change should occur and under what authority (Arguedas et al.). Arguedas, Perez, and Wright (2009) reviewed seven randomized controlled trials that compared 22,089 patient outcomes, total mortality, total serious adverse events, total cardiovascular events, myocardial infarction, stroke, congestive heart failure, end stage renal disease, and all disease linked to hypertension, to standard or lowered blood pressure targets. They found that treating blood pressure below standard levels did not reduce morbidity or mortality. While trends among hypertension specialists over the past 5 years have tended to the lower blood pressure guidelines to reduce morbidity and mortality, more trials are needed (Arguedas et al., 2009). Current evidence did not support a blood pressure target lower than 140/90 in any hypertensive patient (Arguedas et al., 2009). This debate demonstrated the difficulty for physicians in following hypertension guidelines due to uncertainty about optimal blood pressure readings for patients.

Dusing (2006) showed insufficient identification of hypertensive patients as a factor that created a physician compliance barrier. Dusing found that physicians were not strictly adhering to the 140/90 definition of hypertension. In addition, physicians failed to provide information to motivate patients to accept the need for lifestyle changes, and were unsure about *how* to motivate patient to change lifestyle habits. A perceived lack of time on the part of the physician was also noted as a factor in the failure of physicians to adhere to guidelines (Dusing, 2006).

The term white coat syndrome was often listed on patient charts reviewed for hypertension guidelines compliance audits. In my personal experience reviewing patient charts, I found that in most cases, these individuals were not being treated for hypertension. White coat syndrome was defined as a higher blood pressure reading in the clinical setting than outside the clinical setting, which was often thought to be related to the stress of a doctor visit (Pierdomenico et al., 2008). Subjects with white coat hypertension had a higher cardiovascular risk prognosis than patients with both short- and long-term hypertension, an indication that these individuals could be impacted adversely by stress in their lives (Pierdomenico et al., 2008).

A medical group in North Carolina conducted a cross-sectional survey with 18 physicians and 20 support staff in 2006 to evaluate health-care providers' knowledge, attitudes, and clinical practices regarding hypertension management in patients (Holland et al, 2008). Questions were designed to assess patient barriers to achieving blood pressure goals, understanding of published hypertension guidelines, factors impacting accurate blood pressure measurements, and beliefs and practices regarding hypertension

management. Results showed that 94% of the physicians expressed familiarity with published hypertension guidelines and agreed they were important to patient management. However, none of the physician participants had documented a care management program to assist their patient to achieve optimal blood pressure levels. Both physician and support staff cited time as a prime reason why hypertension management was not a priority. Only one third of the physicians studied believed that clinical staff obtained accurate blood pressure measurements, and 65% of staff expressed a desire for competency training in proper blood pressure measurements. Results from this study were used to develop clinical improvement initiatives. Future studies were recommended to provide additional information about the etiology of clinical inertia in managing hypertension compliance (Holland et al., 2008).

Physician-Patient Relationships

Bane, Hughes, Cupples, and McElany (2007) analyzed the data from 25 interviews/focus groups of hypertensive patients and their views of physician-patient relations and hypertension guidelines compliance. Outcomes suggested that physicians and other health-care providers should develop their skills in communication and explore patient belief systems that underlie compliance, especially related to medication use. Specific training programs at the undergraduate and postgraduate levels were suggested (Bane et al., 2007).

Grover et al. (2009) found that only three of 12 studies of physician education interventions to improve the management and follow-up of hypertension in patients showed actual improvement. However, physicians who used a global coronary risk

assessment tool with their patients saw improved blood pressure levels compared to other interventions (Grover et al., 2009).

Svetkey et al. (2009) presented evidence that training on evidence-based medicine treatment for hypertension and information about how to discuss lifestyle issues with patients aided in short-term reductions of blood pressure, if patients also received regular counseling in the form of follow-up calls. However, 60% of the patient participants were already at goal levels in this study. The researchers did not view this success as a need to change how health care was delivered, but as an impractical intervention due to cost and time (Svetkey et al., 2009).

Pay for Performance

In the US, the term *pay for performance* refers to increased payment from payers for physicians who improve outcomes and patient compliance. *Improvement* may have a range of meanings, from patient satisfaction to outcomes based on clinical guidelines. In the UK, however, 25% of the general practitioner or primary care physician's income is derived from achieving quality targets in managing chronic disease (Millett, Gray, Wall, & Majeed, 2008).

Millett et al. (2008) studied the results of a pay for performance contract implemented with primary care physicians in the UK in 2004. Quality outcomes emphasized improving the quality of care for individuals with hypertension targets as one of the measures. Researchers found that patients in ethnic minority groups, particularly those with cardiovascular comorbidities, showed suboptimal control of hypertension compared to Caucasian patients in the pay for performance program. The authors

suggested that offering additional incentives to general practitioners, rather than decreasing incentives to meet treatment targets of ethnic minority populations with comorbid conditions, might enhance improvement. Patient impact on compliance was not discussed. The study authors found that, even with access to care and financial barriers to care removed, doctor-patient issues still existed in hypertension guidelines compliance (Millett et al., 2008).

Greene, Beckman, and Mahoney (2008), when studying pay for performance in the US, investigated what lower cost physicians were doing differently from higher cost physicians, and the specific services responsible for the difference in cost. The researchers engaged a group of participating physicians in a dialogue about the quality of care to determine if an underuse of hypertension guidelines impacted quality, or if an overuse of guidelines did not improve quality. Analysis of claims data showed that quality improvement involved a reduction in overused medical services and products. For example, the researchers found that the use of certain medications was a key cost driver and that lower-priced substitutions in medications produced the same results and lowered costs. The researchers considered medication costs as a quality of care issue. One of the limitations of this study was the failure to examine blood pressure levels and side effects of medications as documented in the medical record or through patient interviews. Greene et al. stated, “Judgmental programs such as pay for performance tend to interfere with quality improvement. . . . They score, but do not support physician work and therefore are perceived by physicians as disempowering” (p. 258). The goal should be to identify specific wasteful practices and engage physicians in changing them. Frustration

and antagonism resulted in accountability without the perceived ability to improve. Pay for performance was viewed as defeating efforts to improve quality of care rather than improving quality (Greene et al., 2008).

Comorbid Conditions

Another complication in the study of guidelines for hypertension was the number of patients living with comorbid conditions. Boyd et al. (2005) suggested that adhering to clinical practice guidelines when caring for older patients with comorbid conditions may have undesirable effects, because guidelines have traditionally been based on single conditions. In addition, a pay for performance system that rewarded physicians for providing specific elements of care based on single disease guidelines may, inadvertently, have created incentives to ignore the complexity of multiple comorbid diseases. This may have decreased the quality of care and led to unfair evaluations of physicians that cared for patients in this population. Boyd et al. suggested that specific recommendations for hypertension associated with other comorbid conditions were missing from the standard acceptable clinical guidelines.

The guidelines presented in the JNC-7, Chobanian et al., (2003) were intended to address the appropriate selection of antihypertensive medications as related to other diseases, such as diabetes and end stage renal disease, but this issue was found to be contentious among physicians. Boyd et al. (2005) asked nine primary care physicians to individually develop a treatment plan for a hypothetical patient with complex comorbid diseases. The results were highly complex treatment plans with multiple medications. Risk of medication errors, adverse drug events, and hospitalizations were possible.

Adherence to the plans would have been difficult, if not impossible, for the patient. This hypothetical example demonstrated a lack of concordance between patient, physician, and the clinical guidelines (Boyd et al., 2005).

Theoretical Models: Physician

Yuan et al. (2010) looked at dissemination of guidelines to improve the quality of care. The authors noted that, based on previous research, little information was available on dissemination. Dissemination can occur spontaneously through informal efforts or actively through formal centralized efforts. The strategies outlined in this study were formal and geared to promote faster and more effective dissemination of guidelines by health-care organizations. It was noted that the degree of success was dependent upon the organization's internal environment. Three factors related to the internal environment: (a) the degree of the perceived need to change practices, (b) the degree of openness to external sources of information, and (c) the degree of internal championship for the change (Yuan et al., 2010, p. 8). The impact of organizational influence on the physician as it pertained to guidelines compliance was also a major factor in individual change.

The *British Journal of General Practice* reviewed a study highlighting the awareness of and adherence to hypertension guidelines by primary care physicians (Heneghan et al., 2007). The study showed that while 99% of the physicians were aware of hypertension guidelines, less than 43% (at a 95% confidence level) adhered to all the guidelines recommendations. The study stated that guidelines were intended to assist the physician in management of hypertension in patients, however, the path from awareness to adherence varied depending on which measures of the guidelines were considered. For

example, 97% of the physicians were aware of the guidelines about lifestyle changes such as diet, exercise, and weight control; 90% agreed with these measures, and 85% said they advised patients to adopt them. In contrast, the choice of antihypertensive medication had the widest variance from awareness to adherence, with a gap of 62%. The researchers concluded that adherence was not always related to awareness, because physicians likely disagreed with the guideline measures due to numerous factors related to patient and physician bias. In addition, compliance measures may have been impractical in the clinical setting due to lack of time and resources. The final reason cited for nonadherence was the physicians' inability to remember all the details due to the volume of current clinical guidelines (Heneghan et al., 2007).

Freed et al. (1998) discussed the dissemination model as it related to immunizations, and identified the following steps in the process of the dissemination of health information: awareness, agreement, adoption, and adherence. All stages were thought to be of equal importance and each stage depended on the previous stage for successful implementation (Freed et al., 1998). The findings of Heneghan et al. (2007), some 10 years later, corresponded with those of Freed et al, that the number of clinical guidelines had increased considerably over the years, with more emphasis on the development of guidelines than dissemination and adherence.

The electronic medical record was suggested as a way to increase dissemination and adherence to guidelines (Georg, Seroussi, & Bouaud, 2005). Practice guidelines have developed rapidly as tools to assist the physician to improve care to patients, but have failed to impact the outcomes of patient care. An ongoing study defined the guideline

elements model (GEM), which was developed to translate the current hypertension guidelines into a format that could be processed by an electronic medical record (Georg et al., 2005). The GEM developers created 104 rules for hypertension guidelines compliance, for example, if A existed, then B applied. Comparisons on eight cases were made between the GEM system and the manual system of compliance currently practiced by physicians. The analysis showed that in 37% of the hypertension cases, the identical treatment plan was identified by both methods; in 40% of the cases, the plan suggested by both systems was compatible. In the remaining cases, approaches differed, but GEM was thought to provide a more justifiable approach for the patient than the manual method (Georg et al., 2005).

Theoretical Models: Patient

The patient self-efficacy model was often combined with SLT (i.e., social cognitive theory) in the literature. According to Murray-Johnson et al. (2006), SLT was widely used in a variety of health interventions. The foundation of SLT was self-efficacy, or an individual's belief that he or she could bring a certain action to bear on his/her personal behavior and/or social environment. Self-efficacy was developed by four actions: (a) participant success, (b) stress reduction through yoga or other physiological therapies, (c) exhortation or suggestion, and (d) symbolic modeling or watching someone else accomplish a task. Improved self-efficacy increased the likelihood that the person would attempt to make a change in behavior in a positive direction (Murray-Johnson et al., 2006).

African Americans have higher rates of hypertension, poorer medication compliance, and less blood pressure control than Caucasians (Kressin et al., 2007). A study with African American and Caucasian hypertensive patients from three Veterans Administration (VA) medical facilities was designed to determine the associations between the races, self-reported experiences with the physician relationship, and health beliefs about hypertension. The results showed that African American patients believed that high blood pressure was a more serious threat than did Caucasians patients. There was no racial difference in blood pressure control between the two groups, contrary to information previously reported in general population studies. Results showed that patients with greater perceived self-efficacy about taking medications had higher adherence. It was suggested that, in the VA setting, health beliefs were fostered by the physicians and other care providers during the clinic visit, using patient-centered counseling techniques (Kressin et al., 2007).

The HBT was thought to be the most prominent theory to describe findings on health behavior involving acute illness (Becker, Maiman, Kirscht, Haefner, & Drachman, 1977). Becker et al. (1977) studied the HBT and its role in behavior related to chronic illness, as well as “fear-arousing” (p. 348) as a means to influence behavior. The authors suggested that the basic HBT had been “reformulated and expanded” (p. 349) over time to include additional findings. For example, a disease-avoidance orientation was identified in the original model, but the updated model suggested that positive health motivations existed as well (Becker et al., 1977). It was also noted that individuals employed measures that had health implications for reasons unrelated to health. Such

categories as “health motivation, feelings of control over health matters, faith in doctors and medical care, as well as intention to comply” (p. 350) were added to the expanded HBT.

Becker et al. (1977) used the HBT to assess obesity and dietary adherence in children. Although dietary adherence was not an immediate threat to health, it was often linked to other conditions and could be undertaken for reasons other than health. Furthermore, not everyone regarded obesity as a health issue. The study summary noted that the HBT offered no particular strategy for changing one’s beliefs, however, the fear messages used in this study had an impact on compliance behavior. The authors suggested that while the model proved effective in decreasing childhood obesity, the HBT should be tested in additional research on various patient behaviors to determine its effectiveness to produce compliance (Becker et al., 1977).

Patient Lifestyle

Diet

Patient-centered research on optimal blood pressure levels was focused on lifestyle change and medication compliance. Mitka (2009) cited a study about patient adherence to the DASH diet, one of the recommended hypertension guidelines of the JNC-7. The DASH diet, low in fat and sodium, was shown to reduce systolic blood pressure by 11.4 mm Hg, and diastolic blood pressure by 5.5 mm Hg. Only 22% of the 4386 hypertensive patients in this study followed the DASH eating plan. Mitka suggested that physicians might be too busy to invest in patient education or perhaps lacked understanding of how to promote lifestyle issues to patients in a clinical practice.

Exercise

Wen et al. (2011) showed that individuals benefited from even low levels of physical activity. Compared to the inactive group, exercise at low levels, 92 minutes a week or 15 minutes a day, had a 14% reduced risk of all-cause mortality, and a 3-year longer life expectancy.

Aerobic exercise was thought to reduce the amount of CVD risk, presumably by reducing the grade of oxidative stress (Fenty-Stewart et al., 2009). The strong genetic component to hypertension along with oxidative stress is thought to interrelate in the contribution to CVD states (Fenty-Stewart et al.). Oxidative stress is defined as an increase in reactive oxygen species and a reduction in endogenous antioxidant defenses (Fenty-Stewart et al.). “Oxidative stress may directly or indirectly contribute to the progression of end-organ injury by promoting hypertension, atherosclerosis or by inducing glomerular damage and renal ischemia” (p. 204). This study showed that the long-term impact of aerobic exercise on oxidative stress could not be measured, and that high levels of aerobic exercise intensity may not produce any further positive benefits to CV risk (Fenty-Stewart et al.).

Weight

Rates of hypertension and other cardiovascular risk factors in a study of professional football players were compared to men who were not football players (Tucker et al., 2009). Even though professional football players smoked less and had lipid profiles and glucose tolerance tests equal to their non-football counterparts, they had significantly increased rates of hypertension—64.5% of football players had

prehypertension compared to 24.2% of non-football players; 13.8% of football players had hypertension compared to 5.5% of non-football players with 95% confidence for both categories—(Tucker et al., 2009). Researchers attributed these data to the increased body mass index (BMI) of the professional football players. While further studies are needed to test this theory in football players, other studies have shown that increased BMI, a lifestyle issue, can significantly contribute to hypertension (Johnson et al., 2009).

Complementary Medicine

Dusing (2006), a German researcher, noted the following patient compliance factors impacting blood pressure control: lack of education; lifestyle issues such as excessive consumption of alcohol; consumption of natural products such as licorice, Ma Huang, herbal ecstasy, and St. Johns's Wort; poor compliance with medication regimes; and failure to adhere to suggested lifestyle changes. Failure to take prescribed medications was observed in up to 50% of patients with unacceptable blood pressure levels (Dusing, 2006).

Studies in the US rarely included alternative products as cited in the Dusing (2006) study, which were often outside the realm of medical practice and knowledge. Bailey (2002) noted that complementary or alternative medicine (CAM) therapies have risen in the US since 1990. For example, 33.8% of the adult population used at least one alternative therapy in 1990, which increased to 42.1% in 1997. The largest increase occurred in herbal medicines, massage, megavitamins, self-help groups, folk remedies, energy healing, and homeopathy. Many of these CAM therapies were used to treat medical conditions such as hypertension, especially in some minority cultures (Bailey,

2002). Bailey cited a study by Eisenberg et al. (1998) in which 72% of the people using alternative therapies did not inform their medical doctor.

In 1992, the National Institute of Health (NIH) began research to investigate CAM for acute and chronic conditions (Baily, 2002). However, despite the increased public interest and demand, the NIH did not receive funding to investigate treatments provided by chiropractors, nutritionists, herbalists, massage therapist, fitness experts, or self-therapy modalities. People over age 50 were the most frequent users of CAM, but 42% in a national survey stated that the doctor never asked about CAM, 30% said they did not know they should speak with their doctor about CAM, and 19% said their doctor did not have time during the office visit to discuss CAM (Bailey, 2002). The NIH's National Center for Complementary and Alternative Medicine (NCCAM) website contained articles relating hypertension to other topics, including Tai Chi, the effects of cocoa, sleep disorders, and acupuncture, suggesting that further studies were needed to prove or disprove the efficacy of CAM in relationship to hypertension control.

Medication Compliance

Mazzaglia et al. (2009) investigated medication compliance for newly diagnosed hypertensive patients with no previous history of CVD in Italy. Participants included 18,806 patients aged 35 years and above. They were followed for a total of one year, however, at six months they were classified as high adherence (8.1%), intermediate adherence (40.5%), and low adherence (51.4%) to prescribed medication. Patients on multiple drug therapies for diabetes, dyslipidemia, obesity, and/or antihypertensive combination therapies were associated with higher levels of adherence ($p < 0.001$) to

antihypertensive medications (Mazzaglia et al., 2009). The high adherence group showed a significant decrease (38%) in acute cardiovascular events (hazard ratio, 0.62: 95% CI, 0.40 to 0.96; $p = 0.032$) compared to the other two groups. Women and older patients were less likely to be categorized in the high medication compliance group (Mazzaglia et al., 2009). In the US, women and older persons were more compliant and those needing multiple drug therapies were less compliant to medication therapies (Chobanian et al., 2009).

In a meta-analysis of hypertension interventions, Schroeder, Fahey, and Ebrahim (2004) concluded that adherence to blood pressure medicine was the single most important variable to control blood pressure, however, the intervention that best addressed medication compliance was not known. The authors reviewed 38 studies that had been conducted in nine countries between 1975 and 2000. These studies tested 58 different interventions on 15,519 patients. The follow-up periods ranged from 2 to 60 months. The results showed that simplifying dosing patterns increased compliance in 7 out of 9 studies, with a relative increase in compliance from 8% to 19.6%. Motivational strategies increased compliance in 10 of 24 studies, but with only a small increase in compliance. In 8 of 18 studies in which more than one intervention was involved, an increase in compliance of 5% to 41% was noted. Patient education alone was largely unsuccessful (Schroeder et al., 2004).

In support of the team-based approach for increased hypertension medication compliance, Carter et al. (2009) conducted research to investigate clinical pharmacists assisting physicians with drug therapy choices based on national guidelines for blood

pressure control. In six months, guidelines adherence scores increased only 8.1% in the control group with a blood pressure reduction of 6.8/4.5, while guidelines adherence scores increased by 55.4% with blood pressure reduction of 20.7/9.7 in the intervention group ($p < .05$).

In another collaborative study involving pharmacists and patients receiving the intervention of team-managed care, significantly lower blood pressures were achieved overall, and 63% achieved target blood pressures below 140/80 compared to only 44% of the control group (Hunt et al., 2008). The intervention group received more total office visits, however, they had fewer physician visits compared to the control group (in this study pharmacists and physicians were in the same facility). The intervention group was prescribed more antihypertensive medications, but did not take more hypertensive pills per day (Hunt et al., 2008). The unique feature in this physician/pharmacist team approach was that the pharmacist was allowed to change a patient's hypertensive medication according to guidelines without consulting the physician in advance. The study also measured patient satisfaction with the physician/pharmacist team and found them at ease with the approach and satisfied with the care they received; their perception or trust in their physician was not diminished (Hunt et al., 2008).

Lachaine et al. (2008) was designed to study choices, persistence, and adherence to antihypertensive agents in a real life clinical setting rather than a clinical trial setting. While data suggested lifestyle interventions reduced high blood pressure, most patients required medication for effective control. The authors concluded that results from clinical trials may not have been generalizable to the clinical setting due to the differences in the

two settings: compliance to medication in a clinical trial is higher than compliance to medication studied in the clinical setting. Therefore, they proposed that treatment recommendations be based, not only on clinical trials, but also on experience in the clinical setting (Lachaine et al., 2008). In a real life clinical setting, patients were less adherent and persistent in taking a diuretic antihypertensive than any other antihypertensive medication, even though diuretic medications were considered among the most effective and cheapest medications (Lachaine et al., 2008).

Fischer and Avorn (2004) examined the economic implications of evidence-based prescribing for hypertension and found a large divergence between routine practice, clinical trial data, and evidence-based recommendations in prescribing hypertension medications. They claimed that a potential savings of \$87.14 per patient/per year, for a total of 1.2 billion dollars per year, could be saved following proper prescribing. The vigorous marketing of new, more costly drugs was given as the possible explanation for the large cost difference between clinical practice and evidence. This study was limited in that patients and physicians were not interviewed, nor were medical records examined, therefore, contradictions or difficulties regarding medication prescribing were not evaluated (Fischer & Avorn, 2004).

A study of veterans in the US by Hong, Oddone, Dudley, and Bosworth (2006) evaluated internal versus external locus of control and antihypertensive medication adherence. An individual with high internal locus of control believes his or her health is influenced by personal behavior; an individual with high external locus of control believes that others influence or control their fate. Little research has been done to

consider the effect of locus of control on medication adherence (Hong et al., 2006).

Veterans were used as participants in this study to eliminate the access to care bias, and to provide a homogenous population. The sample consisted of 588 veterans, 98% of whom were male, 54% retired, 57% Caucasian, 40% African American, the majority had completed at least 10th grade, and 44% had some college education (Hong et al., 2006).

The results showed individuals with a high internal locus of control and high medication barriers such as cost, had low medication adherence. Individuals with high internal locus of control were able to surmount the stress of a few medication barriers, but not a high number of barriers. It was proposed that individuals with a high internal locus of control preferred to be in control; when barriers were high, the perception of control decreased, as did compliance. This result was opposite to what was expected, however. The researchers suggested that further research was needed to understand locus of control and medication compliance in the general population (Hong et al., 2006).

Health Literacy

Health literacy was defined by the U.S. Healthy People 2010 goals as “The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (Perlow, 2008). Perlow (2008) cited results from the 2003 National Assessment of Adult Literacy (NAAL) that contained a component to measure health literacy. The results showed of the 19,000 adult respondents, 53% had intermediate health literacy skills, 12% had proficient skills, 22% had basic skills, and 14% had below basic skills. Of the respondents who received Medicare or Medicaid, 27% and 30%, respectively had “below

basic” health literacy. According to Perlow (2008), in our global and diverse world, two components are needed for health literacy improvement: patient involvement in the process and cultural competency.

Gender, Race, and Income

Forman, Stampfer, and Curhan (2009) found that hypertension contributed to more deaths in women than any other preventable factor. However, women who engaged in six healthy behaviors, including normal weight, daily vigorous exercise, a low sodium diet, modest alcohol intake, infrequent use of analgesics, and folic acid supplementation, had a 78% lower risk of developing hypertension. The importance of clinical care and public health agencies working together to achieve effective disease prevention by reducing the incidence and prevalence of hypertension in women was demonstrated (Forman et al., 2009).

Middleton (2009) found that African Americans have higher rates of hypertension and less hypertension control than Caucasians in a study evaluating a new model of hypertension compliance for African Americans. Even though the study participants had access to health care and knowledge about hypertension equal to Caucasians, participants did not comply with guidelines for lifestyle changes and medication, and were less active, ate fewer fruits and vegetables, had higher BMIs, and lower rates of medication compliance than their Caucasian counterparts (Middleton, 2009). A belief system that was inconsistent with the biomedical disease model of hypertension was thought to explain low compliance. Middleton proposed that the health belief model, social

cognitive theory, determinants of behavior change, and relevant lay health beliefs were key aspects of hypertension compliance in African Americans.

In a study of Maryland Medicaid patients, Shaya et al. (2009) evaluated hypertension compliance using retrospective medical and pharmacy claims data. The results showed a significant difference in treatment compliance among races: African Americans were the least likely to comply with medication therapies compared to others. The authors concluded that a new focus on compliance was needed to improve outcomes (Shaya et al., 2009).

In another study of a primarily low income, minority population, adherence to guidelines, especially medication compliance to control hypertension, was evaluated (Morisky, Ang, Krousel-Wood, & Ward, 2008). The researchers analyzed an 8-item, self-reported medication adherence scale to identify patients with adherence problems. They also used a variety of other assessment tools to measure participant knowledge of blood pressure, attitudes toward blood pressure, satisfaction with medical office visits, social support, and blood pressure readings (Morisky et al., 2008). Results showed that high knowledge of hypertension, high positive social support, high patient satisfaction to medical office visits, and high attitudes toward hypertension, increased compliance to medication and decreased blood pressure (Morisky et al., 2008).

The Institute of Medicine (2010) outlined the incidence and prevalence of hypertension in the US with corresponding costs in morbidity, mortality, and financial burden. Members of the committee on public health priorities to reduce and control hypertension in the U.S. population contributed to the content of their report, and offered

several recommendations. One of their recommendations was to place a high priority on additional research into poor physician and patient adherence to current guidelines, with the understanding that once these factors were better understood, strategies to increase the likelihood of improved screening, treatment, and lifestyle changes could be developed (Institute of Medicine, 2010).

Patient Centered Medical Home

The goal of the 2011 Patient-Centered Medical Home (PCMH) program, developed by the National Committee for Quality Assurance (NCQA), was to evaluate physician practices committed to continuous quality improvement using technology to assist in data collection and evaluation. In addition to identifying standards of patient-centered care, other standards were identified, including: incorporating behavioral health, improving patient access, instituting coordinated care across a continuum, and evaluating patient experience through satisfaction of care surveys. The NCQA PCMH standards were the first and most widely used formal evaluation program from a national quality oversight organization that resulted in a designation giving the consumer and payers assurance of quality (NCQA, 2011).

Summary

Nearly 30% of the adult population in the US is hypertensive (Bakris et al., 2008). Hypertension is the single most important cause of mortality and the chief factor in the development of CVD and cerebrovascular disease (Bakris et al., 2008). The literature addressed different constituencies responsible for hypertension compliance, including individuals, physicians, health-care professionals, health-care systems and organizations,

communities, as well as government and industry, however blood pressure control rates remained low due to under-diagnosis, under-treatment, and low compliance on the part of individuals and physicians. A better understanding of the relationship between patients and health-care professionals is needed to overcome patient-related barriers to blood pressure control. Physicians' reluctance to follow evidence-based hypertension guidelines requires greater understanding as well. Synthesizing patient and physician perceptions of barriers to hypertension guidelines compliance to create a theory of concordance is necessary to increase quality, improve outcomes, and decrease overall costs related to hypertension morbidity and mortality.

Chapter 3 provides details about the qualitative method proposed for this study, selection of participants, interviewing questions, and the data analysis process. Chapter 4 provides a comprehensive explanation of physician and patient interviews and Chapter 5 provides an interpretation and comparative analysis of findings.

Chapter 3: Research Methods

Introduction

Despite advances in medicine and health-care technology, the effectiveness of hypertension management at a community level is less than optimal (Bakris et al., 2008). The effective management of patients with hypertension depends on physician awareness of evidence-based guidelines and patient compliance; however, little research has been done to evaluate both the physician and patient perspectives. The purpose of this research was to develop a theory of hypertension guidelines compliance based on the integrated perspectives of physicians and patients. Chapter 3 provides a discussion of why a qualitative method, grounded theory research, was chosen for this study. In addition, a review of the research design, the role of the researcher, research questions, participant selection and context, confidentiality concerns, data collection, data analysis, and verification procedures are addressed.

Research Design

In a qualitative study, sensitivity develops as the researcher takes on the role of participant and becomes close to the people and familiar with the data. As the data slowly evolves, themes and concepts arise that are grounded in the data from real world experience. Corbin and Strauss (2008) explained that insights into data do not “occur haphazardly” (p. 32) in the qualitative study, but rather exhibit themselves through the interplay of the data and the “prepared mind” (p. 32) of the researcher.

The qualitative method used for this research was critical as it allowed values, beliefs, and feelings from both the patients and physicians to emerge from the interviews.

Theories emerged from the researcher's observations of the interviews in the real world rather than the laboratory or academic setting (Patton, 2002).

Grounded theory focuses on the process of generating a theory; the research is conducted close to the real world so that results are grounded in practical experiences rather than being experimentally-based (Patton, 2002). Of the three general designs in grounded theory research, the constructivist design, identified by Charmaz (2000), is meant to focus on "views, values, beliefs, and feelings" (Creswell, 2005, p. 402).

Constructivist qualitative inquiry seeks to discover how people in a given setting construct reality based on their perceptions, explanations, and beliefs (Patton, 2002).

Constructivism leads the researcher to highlight the unique experiences of each participant; a social constructionist view emphasizes how culture impacts the way participants perceive things and how they feel about the things they perceive (Patton, 2002).

The constructivist design as defined by Guba and Lincoln (as cited in Patton, 2002), assumes that truth does not always correspond with objective reality, that facts have meaning within some value framework, that causes and effects do not exist except when credited to a person or a cause, and that events or trends can only be understood in context and cannot always be generalized to another context. Data derived based on constructivist inquiry represents a step in building consensus around a particular issue (Patton, 2002). This research combined emerging and constructivist designs as participant views, values, and beliefs were used to systematically construct new theory.

Once data had been collected through one-on-one interviews, a comparative analysis between the physicians' views and the patients' views of hypertension guidelines compliance was performed to illuminate the differences that existed and the need for synthesis (Patton, 2002). Patton described the following broad categories of interview questions in qualitative research:

1. *Experience and behavior questions* deal with what the interviewee does or has done in terms of actions and activities.
2. *Opinions and value questions* deal with the interpretive process of the interviewee in terms of their opinions and judgments (i.e., their thoughts rather than their actions).
3. *Feeling questions* deal with how the interviewee feels about something.
4. *Knowledge questions* deal with the factual information understood by the interviewee.
5. *Sensory questions* deal with what an interviewee sees, hears, touches, and senses.
6. *Background and demographic questions* deal with such facts as age, education, occupation, income range, spiritual or religious categories, ethnicity/race. (pp. 348-351)

Understanding each physician and patient participant as a whole, through in-depth, face-to-face interviews, was an essential part of this research design. Human behavior is rarely explained by isolated variables, as many of the studies in the literature review have shown. Rather, the interdependence of variables within a particular cultural

context, such as between a physician and patient, serves to explain the whole (Patton, 2002). The current literature on hypertension guidelines compliance addressed many parts of the problem separately, and a variety of assumptions were made as to why patients and physicians were not compliant. Forming a new theory of hypertension guidelines compliance involved understanding the whole as a complex system that was greater than the sum of its parts (Patton, 2002).

Theoretical frameworks were common in quantitative research, but not as common or clearly defined in qualitative (Corbin & Strauss, 2008). The literature regarding hypertension guidelines compliance was found to evaluate compliance based on self-care theory and HBT for the patient, but sustainable behavior changes were not found based on these theoretical perspectives. Studies based on physician theories of awareness to adherence and dissemination also did not lead to a greater understanding of low guidelines implementation or patient compliance concerns. In addition, the literature review revealed that experimental or quantitative research on hypertension guidelines compliance often produced outcomes that were not actually occurring in the real world settings of the patient and physician.

Other approaches to qualitative research such as phenomenology, ethnography, case study, and narrative research, were considered for the current research, but none would provide a means to compare and synthesize a model of hypertension guidelines compliance between physician and patient. Phenomenology research is used to investigate the meaning of lived experiences of a concept or event for several individuals (Creswell, 2007). Ethnography research is used to examine the shared experiences of a

culture or group that have developed learned patterns as a result of their close proximity and shared experiences (Creswell, 2007). Case study research is used to explore an issue by examining one or more cases over time through data collection from multiple sources (Creswell, 2007). Narrative research is the spoken or written account of an action or event or series of events in chronological order (Creswell, 2007).

Role of the Researcher

Qualitative grounded theory research is a naturalistic inquiry method with the following characteristics:

1. The study is conducted in a natural setting.
2. The researcher does not operate from a prearranged theory.
3. The researcher relies on her senses when speaking with participants and collects data by talking with and observing people.
4. The researcher can bring implied or inferred knowledge to bear on the situation (Guba & Lincoln, 1988, pp. 103-105).

The first characteristic is meant to acknowledge that multiple realities exist that are time and context dependent, therefore it is essential that the study be carried out in the same context that the researcher seeks to understand. For example, conducting physician interviews in their offices allowed me to gain an understanding of the office space and dynamics. Conducting patient interviews in patients' homes allowed me to understand the context in which the patient is expected to carry out hypertension compliance.

The second characteristic is meant to suggest that the researcher approach the interviews as a learner, adjusting the questions as the process develops. The researcher is

advised to have no preconceived ideas as to what the participant will or should say. Each question and answer in the current study revealed greater understanding of hypertension guidelines compliance.

The third characteristic is meant to support the use of the human senses when talking with and observing participants during interviews by observing body language, tone of voice, and the physical environment.

The final characteristic is meant to support the researcher's right to bring her own implied or inferred knowledge to bear on the situation. Guba and Lincoln (1988) contended, "we all know more than we can say" (p. 106). This qualitative grounded theory study, examining hypertension guidelines compliance, explored what is known and not said from both the physician and patient perspective to develop a theory of hypertension guidelines compliance relevant to the current times.

Research Questions

This study was designed to address the following broad research questions:

1. Why is compliance to hypertension guidelines by the physician and patient so low?
2. How can we increase compliance to reduce morbidity and mortality caused by hypertension?

To understand these broad questions, subquestions and probing questions were asked of the physician and patient participants. Four categories: methods of achieving compliance, awareness of hypertension guidelines, compliance to hypertension guidelines, and the relationship of the physician and patient were used to organize the

questions. Examples of subquestions in each category are provided in Table 1, and a review of probing questions is provided later in this section.

Table 1

Subquestions for Physicians and Patients

	Physician	Patient
Awareness	What practices do you use to remain current with hypertension guidelines?	How can hypertension impact the quality of your life?
Compliance	How do you apply the guidelines to your patient (what methods do you use)?	How does your lifestyle, including medication compliance, affect your hypertension?
Relationship	How can you assist the patient with hypertension compliance?	How can your physician assist you in maintaining compliance?
Methods	What methods or activities do you use or suggest to improve compliance?	What methods or activities does your physician suggest to improve compliance?

Through the interviewing process, what was known and not said from both the physicians and patient perspectives was explored. Each interview allowed me to enter into the interviewee's perspective and assume that what was shared was important, knowable, and precise (Patton, 2002).

The interview format can be conducted in one of three ways: informal conversational interviews, a general interview guide approach, or a standard open-ended

interview (Patton, 2002). Informal conversations are the most open-ended and spontaneous, but often require more time to understand the data because different questions yield different response patterns and are not easy to analyze (Patton, 2002). In the general interview guide approach, the researcher makes a list of questions based on issues to be explored and pursues the same questions with each participant, allowing for free exploration and probing within a systematic format (Patton, 2002). The standard open-ended interview provides a highly focused, carefully worded set of questions that is easy to follow, and each participant is asked the same questions using the same words. This approach inhibits researcher flexibility and the spontaneity of participants (Patton, 2002).

The current research included a combination of these three interview styles. While the three approaches varied, the response format was flexible to allow the interviewer to learn interviewee terminology and to understand how participants expressed the complexities of their perception of compliance to hypertension guidelines (Patton, 2002).

The interview questions were constructed in such a way as to avoid yes/no answers and the sense that the participant was being interrogated or quizzed (Patton, 2002). The opening statement varied. For the patient it was often the following: "I am interested in learning about your view on managing your blood pressure, and your ideas and opinions on how you and your physician can work together to improve hypertension guidelines compliance." The opening statement for the physician was often: "I am interested in your views on hypertension compliance guidelines, how you use them, and what you see as your role, if any, to assist patients to comply with the guidelines." Five of

Patton's (2002) six question categories were used as guides for this research. The question guides, specific questions, and their relationship to the research questions are listed below.

Patient Question Guide

Experience and behavior questions (i.e., questions that dealt with the patients' actions and activities related to their hypertension):

1. How does your lifestyle, including medication compliance, affect your hypertension?

Probing questions:

By lifestyle behaviors, I am referring to what you eat, the amount and kind of exercise you do, and how often you miss taking your daily blood pressure medication. For example, what do you eat in a typical day? Do you know the salt content of your food? Did you take your blood pressure medicine today?

Opinions and value questions (i.e., questions that addressed the interpretive process in terms of their opinions and judgments related to their hypertension):

2. How can your physician assist you in compliance?

Probing questions:

Whose responsibility is it to control your hypertension: yours, your doctor's, or both?

Do you have enough information from your doctor to maintain your blood pressure at 140/90?

Feeling questions (i.e., questions that related to the patient's emotions):

3. How can your physician assist you to improve your compliance?

Probing questions:

How would you feel if your doctor told you to lose weight, quit smoking, or exercise more?

How would you feel if your physician's office increased monitoring of your hypertension by making phone calls to remind you of diet, exercise, and medication compliance?

How does the relationship with your physician impact your desire to lose weight, take your medication, etc., especially related to the above questions?

Knowledge questions (i.e., questions that dealt with the patient's grasp of factual information about hypertension control):

4. How can hypertension impact the quality of your life?

Probing questions:

If you knew beyond any doubt that controlling your blood pressure could improve the length and quality of your life, would you change your habits?

What is your optimal blood pressure reading?

What does your doctor tell you about your blood pressure? Is he/she satisfied with your current reading?

Do you believe you have the ability to control and improve your blood pressure?

Background and demographic questions were asked during the course of the interview process or at the start of the interview.

5. Demographic questions included: age range, sex, income range, education, occupation, employed or not, insurance status.

Physician Question Guide

Experience and behavior questions (i.e., questions that dealt with the physician's actions and activities related to his/her patients' hypertension):

1. What methods do you use to apply hypertension guidelines to your patients?

What methods do you use to educate the patient about lifestyle changes needed to improve hypertension control?

Probing questions:

Do you make referrals to dieticians to assist patients with a low fat, low salt diet?

Do you have a written protocol to assist patients with lifestyle changes to improve blood pressure?

How do you ask patients about medication compliance?

Do you ask the patient to return to the office for blood pressure readings and weight checks?

Opinions and value questions (i.e., questions that addressed the interpretive process in terms of their opinions and judgments related to patients' hypertension compliance):

2. How can you or do you assist the patient in hypertension compliance?

Probing questions:

What do you believe is your responsibility, if any, to assist patients to understand the importance of compliance?

Feeling questions (i.e., questions that related to the physician's emotions):

3. How can you or do you assist the patient in hypertension compliance?

Probing questions:

Do you feel the current health-care system assists you in increasing patient compliance?

Do you feel the physician of today is ready and able to handle the volume of chronic diseases such as hypertension?

How do you feel about the length of time you have with your patient during an office visit?

Knowledge questions (i.e., questions that dealt with the physician's grasp of factual information about hypertension control):

4. What practices do you use to remain current with hypertension guidelines?

Probing questions:

What evidence-for-practice do you base your current practice of hypertension treatment on?

Is systolic hypertension something you treat in your practice?

Do you agree with the JNC-7 hypertension guidelines?

Background and demographic questions were obtained prior to the interview. I reviewed the answers during the interview process.

5. Demographic questions included a verification of education and degree, age range, and specialty.

Context and Selecting Participants

Selecting participants for qualitative grounded theory research is purposeful rather than representative or random (Guba & Lincoln, 1988). The most effective sample is one that provides the broadest scope of information in order to achieve the broadest base of understanding (Guba & Lincoln, 1988).

Patient participants were selected from physician practices in two Midwest health systems. Physician participants were selected from the 600 currently practicing at the PHO, plus one outside the PHO, and consisted of those with family medicine or internal medicine specialties. The physicians and patients were not matching pairs. The decision to avoid a dyad selection was made to decrease the chance that I would develop preconceived ideas from speaking with one member of a pair and then the other. Furthermore, avoiding physician-patient dyads eliminated the problem of the patient or doctor feeling that they could not freely discuss the questions because the other member might discover what was said.

Seven patient participants were chosen; three were males, and four were females. Several ethnic/racial backgrounds were represented including African American, Hispanic, and Caucasian. Ages ranged from 30-65. Socioeconomic status of the patients varied but none were considered underserved, and all but one had a college education. Physician participants included primary care physicians: four internal medicine and five family medicine specialists. Six of the physicians held MD degrees and three held DO degrees. Two of the physicians were educated outside the US, and seven were American educated.

Participants were solicited via letter and personal phone calls. Physicians were interviewed in their private offices; most patients were interviewed in their homes, but one was interviewed at her office and one at a coffee shop. Remuneration, in the form of a \$50 gift card per interview for each physician, and a \$25 gift card and a cookbook per interview for each patient, were presented at the end of each interview.

Participants struggling with compliance to hypertension guidelines provided the best information. As noted in the literature review, many hypertension compliance studies have used participants who have already attained normative blood pressure levels. The seven non-compliant patients included those with a consistently elevated blood pressure, either systolic and/or diastolic, over the recommended 140/90. The patient group also included individuals with lifestyle habits such as high BMI, a pattern of irregular use of medication, and/or poor exercise behaviors. The invitation letter to select patient participants outlined these requirements to participate in the study.

The health system had policies, to undergo an institutional review board (IRB) process when soliciting patients and physicians from that health system. The research department of the health system provided assistance to help me prepare for the process (see Appendix A and B). The physician and patients from outside health system volunteered and were not subject to solicitation. All Walden IRB processes were followed as written or revised.

Access to Participants and Developing Relationships

A working relationship with the physicians had already been established due to my current position as Clinical Quality Director for the PHO. Physicians were contacted

with a letter (see Appendix C) and a follow-up phone call to ask for participation. The patient relationship was developed through letters mailed to patients (see Appendix D).

Ethical Protection of Participants

The participants in this study were primary care physicians with specialties in family medicine and internal medicine, and patients with a diagnosis of hypertension. All invited participants were free to choose whether or not to participate. Each participant signed a confidentiality agreement (see Appendix E), and an informed consent form (Appendixes F and G).

There was no known risk of harm to participate in this study, however, a well-constructed qualitative interview can expose feelings, thoughts, and experiences of which the interviewee is not fully aware prior to the experience (Patton, 2002). If participants believed a personal difficulty had arisen associated with the interview process, a referral would have been made to a local entity for counseling and follow-up.

Patient participants were assured in writing and verbally that the interview would be completely confidential, that is, it would not be shared with their physician or anyone else, and their relationship with their physician would not be affected in any way. If a patient discussed unrelated information that he or she believed needed immediate attention, he or she would have been given the option to confidentially share the information with the appropriate authority for intervention. None of the patient participants revealed any information requiring immediate medical attention during their interviews.

While the purpose of the interview was to gather data rather than solve problems, I provided a consumer-oriented, medically approved cookbook for weight and hypertension management to each patient participant.

Physician participants were assured in writing and verbally that the interview would be completely confidential and would not be shared with any other patient, physician, or administrative staff at the PHO. Information expressed by a physician that did not relate to the data collection and the research, but was felt by the physician to merit intervention, would have been confidentially shared with the appropriate authority with the physician's permission. None of the physician participants revealed any information requiring immediate attention during their interviews.

Identifying information was only available to me. I kept all personal identifying information for all participants, along with audiotapes and field notes, in a locked file drawer in my home office. Only myself and those involved in verification had access to the transcribed notes of the interviews.

Data Collection and Analysis

Qualitative analysis transforms data into findings and reveals what is important to know (Patton, 2002). Analysis of qualitative data has been compared to peeling an onion: removing each layer takes one closer to the core (Patton, 2002). The analytic journey is different for each qualitative study (Patton, 2002).

Summary transitions let the interviewee know that the interviewer is actively listening and gives her or him an opportunity to make corrections, additions, or clarifications (Patton, 2002). An example of a summary transition for patient participants

in this research was: How does exercise impact your blood pressure? This particular question was often answered in a way that reflected how exercise might impact their hypertension rather than how it did impact their hypertension, therefore, the question was rephrased to ask specifics about patient experience with exercise and their own blood pressure reading.

Second interviews were included on the consent form but were not required for either patient or physician interviews. If a participant did not fully answer a question, I used a suggestion recommended by Patton (2002), making the following statement “I don’t want to let that question go by without asking you to think about it just a little bit more, because I feel you’ve really given some important detail and insights on the other questions and I’d like to get more of your reflections about this question” (p. 375).

Grounded theory research, unlike other qualitative methods, focuses on the process of generating and building theory, rather than testing or describing theory (Patton, 2002). Grounded theory research consists of constantly comparing data to find emerging themes and categories based on the views of the participants in the study (Creswell, 2003). The comparative analysis process emerges, rather than being forced, as the data is constantly compared (Patton, 2002). As the theory emerged from a systematic comparative analysis of the data in this study, it provided an explanation of what I had observed as a result of being absorbed in the empirical world (Patton, 2002).

I conducted a comparative analysis of the data collected from both the physicians’ and patients’ perceptions of compliance to hypertension guidelines to find similarities and differences (Corbin & Strauss, 2008). The work of analysis was ongoing throughout

the coding process. Connections between the data provided by the physicians and patients was expected to arise as I encountered common themes (Corbin & Strauss, 2008). By comparing data with data, data with categories, and categories with categories, I gained new insight into theories of compliance involving the patient and the physician.

The interviews were analyzed and statements coded based on emerging themes and concepts. These were organized into categories that reflected an analytic understanding of the coded entities, not the entities themselves. Data from each interview was analyzed and systematically compared with previously collected and analyzed data prior to any further interviews.

Data were organized by assigning an alphanumeric designation to each participant's interview; this designation was also used to identify written notes and entries into MAXQDA. The audio-recording transcripts and corresponding notes were entered into MAXQDA, where the interview coding took place. Coding techniques involved interacting with the data by asking questions about it, making comparisons, and assigning concepts to identify its properties and dimensions (Corbin & Strauss, 2008). Open/axial and in-vivo coding was performed based on definitions provided by Corbin and Strauss (2008). In-vivo coding refers to using the actual words of research participants rather than assigning a concept or name to the words; open/axial coding involves assigning themes to the data during the first pass, then refining those themes to discover the axis or key concepts during the second pass (Corbin & Strauss, 2008).

For example, in the first phase of analysis, the recorded transcripts were reviewed to discern patterns or emerging themes. To discern themes, I asked two essential

questions. First, what issues or ideas recurred across the data? Second, what differences were noticed in the data? The process of coding was considered complete when the analysis produced no further categories.

In the second phase of analysis, the categories were clustered into groups. Those that received the largest number of references emerged as the major themes; those that received fewer references were classified as subthemes, incorporated into larger code clusters, or discarded. Upon completion of the coding process, the software was used to create a graphic representation to show how many and which codes were related.

Evidence of Quality

Participant feedback of the analysis is a major part of ensuring quality in qualitative analysis (Patton, 2002). Presenting the findings to the participants in an informal, written, or verbal manner, is one way to test them. Another method is to have an independent reviewer familiar with qualitative inquiry review the audit trail to determine if the researcher's interpretations are grounded in the data (Ulin, Robinson, & Tolley, 2005). The audit reviewer, a PhD graduate from Walden University, versed in qualitative inquiry, was enlisted to check the findings, and was given access to the raw data (i.e., the audio-recordings and uncoded transcripts), as well as the field notes from the interviews. Lists of codes derived from the data reduction, as well as categories and themes derived from the coding, were provided for review as well (Ulin et al., 2005). The reviewer also had access to entries of personal observations and perspectives noted during the data collection and analysis, to identify researcher bias as part of the quality assurance process.

Summary

Qualitative grounded theory was chosen for this study to synthesize the perceptions of physicians and patients for the purpose of developing a model of compliance to hypertension guidelines. The participants were patients with hypertension and physicians treating hypertension patients in two suburban health systems. Data was collected via taped interviews and coded using MAXQDA software. Evidence of quality was achieved by reviewing findings with one participant, and through a formal peer review of the audit trail by a PhD graduate of Walden, familiar with qualitative inquiry. Chapter 4 provides a comprehensive explanation of physician and patient interviews and Chapter 5 provides an interpretation and comparative analysis of findings.

Chapter 4: Results

Introduction

Approximately 65 million adults in the United States have hypertension (Egan, Zhao, & Axon, 2010). The National Health and Nutrition Examination Survey (NHANES), conducted between 1988-1994 and 1999-2008 in five, 2-year blocks, showed rates of hypertension increased from 23.9% to 28.5% between 1988-1994, while hypertension rates between 1999-2000 and 2007-2008 did not increase. The same survey showed that rates of hypertension control improved after the 1999-2000 measurement period. For example, statistics from 2007-2008 showed that 50.1% of individuals with hypertension were controlling their blood pressure readings to below 140/90. Significantly less control was found in the 18-39 age groups, the over-60 age group, and in Hispanic groups. However hypertension prevalence is not decreasing toward the national goal of 16%. Furthermore, it is likely to remain high due to adverse trends in poor nutrition within the general population and increasing BMI.

Hypertension compliance to stated guidelines was shown to be a challenge for both the physician and the patient (Heneghan et al., 2007). Despite numerous studies, a gap existed in understanding both physician and patient barriers to implementing hypertension guidelines. Developing a synthesized model, addressing both patient and physician barriers to hypertension guidelines compliance, was the objective of this research.

In-person interviews with nine physicians and seven patients (non-dyads) were conducted to understand barriers to complying with hypertension guidelines. The

research included a wider circle of participants than originally planned to ensure a greater diversity of participants. All interviews and data collection conformed to the IRB standards of Walden University and the IRB process of the health system under study.

In Chapter 4, the process used in recruiting participants, details about how the interviews were conducted, presentation of data, and a discussion of the progression of analysis used to identify themes and verify results to ensure accuracy is presented.

Recruitment and Participant Profile

This study was originally designed to recruit patient and physician participants from one physician hospital organization (PHO) in the Midwest United States. However, to achieve greater racial and gender diversity, the participant pool was expanded to include four patients and one physician from another health system. The health systems are open and movement of patients and physicians between both systems is common. The patient participants recruited from outside the PHO volunteered for the study knowing they met the patient criteria for participation. The one physician outside the PHO was concerned about hypertension guidelines compliance and agreed to participate.

A total of 260 charts were reviewed to identify patients from within the PHO who met the criteria to participate in the research, that is, a diagnosis of hypertension exceeding the standard of 120/80, with at least one additional variable defined as noncompliance: elevated BMI, smoking, medication irregularity, or the lack of exercise. Letters of participation (see Appendix D) were sent to 158 patients. Patients were not phoned as a follow-up to the letter to avoid the sense of pressuring them to respond. Potential patient participants were given the option to e-mail or call me to set up

interview times. The four patient participants outside the PHO were assessed for elevated blood pressure levels and the other variables noted above prior to participation.

Of the seven patient participants that volunteered, all had a BMI exceeding the normal level of 25. Only one female participant had a formal exercise plan. Medication compliance was consistent for all the participants, none of the participants were smokers, and none would be considered underserved. Patient participants included three males (all married), four females (three of whom were married and one who was not). Five of the patient participants were over 50, one male was in his 40s and one female was in her 30s. Four were Caucasian, two were African American, and one was Hispanic. Income for six was over \$25,000; one earned less than \$25,000. One female finished high school only, one male had 1-2 years of college, and five had 4 or more years of college. Six had health insurance and one did not have health insurance and was not old enough for Medicare.

Physician participants were selected according to guidelines described in Chapter 3 and included only primary care physicians: four internal medicine specialists and five family medicine specialists. After 30 letters of participation were sent with only two responses (see Appendix C), follow-up phone calls were conducted to encourage participation. The physician participants included four males, and five females; five were over age 50, three were under age 50, and one was 50 years old. Six of the physicians held MD degrees and three held DO degrees. Two of the physicians were educated outside the United States and seven were American educated. Avoiding physician-patient dyads eliminated the problem of the patient or doctor feeling that they could not freely discuss the questions because the other dyad member might find out what had been said.

Data Collection and Storage

Consent forms were reviewed and signed by each physician and patient prior to the start of the interview (see Appendices F and G). Participants were asked to choose the location of their face-to-face interview; all physicians chose their office as the interview location. Five patients selected their home as the interview location, one selected her place of employment, and one selected a coffee shop. To compensate for their time, patient participants received a \$25.00 gift card and a cookbook from the American Heart Association; physician participants received a \$50.00 gift card.

All interviews were recorded and transcribed into MAQDA, software designed to facilitate the analysis of qualitative data. Participant identifying information was not imported to MAXQDA. Consent forms and interview forms were stored in a locked file drawer at my residence. Tapes of recorded interviews, and transcriptions of interviews in Microsoft Word documents will be destroyed in compliance with Walden University IRB requirements. Although participants agreed on their consent forms to a potential follow-up interview, second interviews were not required.

Interview Process

A constructivist design was chosen for this qualitative grounded theory research to focus on views, values, beliefs, and feelings. This allowed me to elicit the unique experiences of the participants to understand how health care systems in the United States impacted the way they perceived their experiences and how they felt about what they perceived (Patton, 2002).

Real world themes emerged from my observations during the interviews in physicians' offices and patients' homes; these might not have surfaced in a laboratory or an academic setting. For example, physicians believed improved patient education could only be achieved in an academic setting where research money for that purpose was available; they did not believe improved patient education could be accomplished in their offices. Patient participants expressed such real world feelings as "I don't understand what I read on the Internet about hypertension and how it applies to me." Two research questions were the basis for the emerging and constructivist design of the interviews: (a) Why is compliance to hypertension guidelines by the patient and physician so low, and (b) How can we increase compliance to reduce morbidity and mortality caused by hypertension?

In addition to the verbatim recordings, I also noted body language, tone of voice, areas of emphasis, and word choice. For example, one patient stated in an excited tone, "If I had a call from my doctor's office right now and they said 'I haven't seen you for awhile,' I would be blown away."

I also brought my implied or inferred knowledge to bear on the process. For example, physicians cited insurance requirements as a major obstacle to hypertension guidelines compliance. I used my firsthand knowledge about this subject to draw out the physicians and patients and help them better articulate the exact ways insurance interfered with compliance.

Interview questions were originally broadly categorized into physician awareness, patient compliance, and the doctor/patient relationship; an additional theme, methods or

activities, was added during the coding process. A general interview guide was used that included informal conversation with semistructured questions to begin the interview process with both physician and patient participants. I explored areas of experience, behavior, opinions, and values in hypertension awareness, compliance, and barriers, and the impact of the physician/patient relationship on compliance. For example, both groups were asked to describe, in their opinion, the ideal office visit. (See physician and patient guide section)

Tracking Data and Logs

All interviews were recorded on a digital audio device. In addition, I took notes during the interviews. The recordings were transcribed verbatim, and then imported to the MAXQDA program. Coding was accomplished on all transcripts by grouping words and phrases with colored brackets. The coded groups of words were retrieved in segments in a second pass to discover additional themes not noticed in the first review. I added information using the memo section in MAXQDA to note areas of comparative analysis between patient and doctor interviews, and my own biases were recorded in the log section in MAXQDA. The following is an example of how I used these notes: In my second patient interview, the patient described feelings of mistrust toward her physician. While writing notes about the interview, I realized it would have been very difficult for me to interview this woman's physician without asking leading questions or relating information to the physician from the patient, and the decision to avoid physician/patient dyads had been a good one.

Data Analysis

Each interview was coded for themes related to activities, awareness, compliance, and relationship for both physician and patient participants. In addition, participant behavior, feelings, opinions, and knowledge of compliance were coded. An individual with a PhD in public health acted as an outside reviewer of the transcripts and suggested possible codes based on her review.

The goal of data analysis in grounded theory research is to focus on the process of generating a theory; the data collected is grounded in practical experiences rather than artificially induced through designs based on experiments (Patton, 2002). Human behavior is rarely explained by isolated variables, as evidenced by many of the studies cited in the literature review. Rather, the interdependence of variables within a particular cultural context, such as between a physician and patient, serves to explain the whole (Patton, 2002). Qualitative analysis transforms data into findings and reveals what is important to know (Patton, 2002). Analysis of qualitative data has been compared to peeling an onion: removing each layer takes one closer to the core (Patton, 2002).

Open/axial and in-vivo coding was performed following Corbin's (2008) definitions. In-vivo coding refers to using the actual words of research participants rather than assigning a concept or name to the words (Corbin, 2008). Open/axial coding involves assigning themes to the data during the first pass, then refining those themes to discover the axis or key concepts during the second pass.

Themes Identified

Themes were separately defined based on physician interviews and patient interviews as each group answered questions about hypertension compliance. Physicians and patients were both asked questions related to the broad themes of awareness, patient/physician relationships, compliance, and methods or activities of compliance. Probing questions about opinions, values related to the patient/physician relationship, and knowledge related to hypertension guidelines awareness were also explored with both groups.

The four broad themes were found to include the codes shown in Table 2 that were identified in the physician interview data and those shown in Table 3 from the patient interview data. Each of the themes and corresponding codes will be discussed separately.

Table 2

Physician Themes and Codes in Four Categories

Physician Methods	Physician/Patient Relationships	Physician Awareness	Patient Compliance
<ul style="list-style-type: none"> • Physician interventions: <ul style="list-style-type: none"> ○ Dietary ○ Exercise ○ Smoking ○ Medication • Ability of physician to handle chronic disease • Current office practice • Professional support 	<ul style="list-style-type: none"> • Role of physician patient relationship • Length of time with patient • Health insurance • Health System • Ideal office of the future 	<ul style="list-style-type: none"> • Dissemination model • Self-efficacy model • Health belief model • Educational approach with patients 	<ul style="list-style-type: none"> • Patient non-compliance reasons • Physician responsibility for patient compliance • Community involvement to assist with compliance

Physician Interviews**Physician Methods**

Physician interventions. The first question of the physician interviews was “What do you do to assist new or established patients with hypertension compliance?”

Note that in all the excerpts from the transcribed, in-person interviews that follow, “I” is

used to indicate the interviewer; “P” is used to indicate the patient interviewee, and “DR” is used to indicate the physician interviewee. A line separates remarks from individual participant interviews.

“What do you do to assist new or established patients with hypertension compliance?” Education and knowledge of medication were cited most often as things doctors actually did to assist patients with hypertension compliance. None of the physicians had a formal (i.e., written) plan for achieving compliance goals for managing hypertension to acceptable levels. The question/response below was typical.

I: Do you put together a written care plan?

DR: No, I think I have that in my head. Each time I go through the exercises, weight, diet, height, smoking; no formal plan but I make a point to ask the questions each time.

Home blood pressure readings and ambulatory readings have recently been identified as critical to treating hypertension. Over-medication based on elevated office readings alone could place the patient at risk for fainting and result in falls and fractures (Hodgkinson et al., 2011). Three of the physicians recommended the type or brand of blood pressure machine they wanted the patient to use at home, as in these examples:

DR: So the first thing I do is to be sure they are taking the blood pressure at home, an arm cuff, not a wrist one. If they ask for a brand I say a brand OMRON; they can find it in most places.

I: Anyone say it is too expensive?

DR: No because they aren't too expensive.

I: Do you recommend the type of cuff to buy?

DR: No, but I do emphasize the size of cuff. I tell them the size matters and they have one too small they will not get an accurate reading; if they are big I tell them they need a large cuff.

I: Do you ask them to bring their cuff in to check with the office?

DR: Sometimes these newer ones, especially the one on the wrist, I am not sure how accurate they are, so a lot of times I ask them to bring it over so we can compare notes.

Dietary. All the physicians mentioned dietary instructions, but only in general terms. All supported the concept of organized weight loss programs, with Weight Watchers the most frequently mentioned. No physician mentioned the cost of such programs to the patient. Physicians noted that insurance companies provided no coverage for dietician visits to improve diet unless the patient was a new diabetic. Physicians demonstrated by their responses what patients were quick to understand: most physicians do not have a solid knowledge of how to educate patients in dietary issues. Scherger (2011) commented on a study by Soloway that people in commercial programs lost twice as much weight after one year as those who received standard care from primary care providers. Some examples of physician responses regarding dietary issues included the following:

I: Do you ever refer them to the dietician or to Weight Watchers or pick up the phone and make an appointment for them?

DR: No. If they say they are going to go to Weight Watchers I tell [them] I think Weight Watchers is fantastic; I wish you would do that. I would have to say I have not picked up the phone and said I am going to make the appointment right now.

DR: I ask about caffeine, I encourage them to stop. If they add salt to food, or eat salty food I tell them to stop.

I: How do you explain salt to them?

DR: I give examples, potato chips, ham, cut meats, soups, processed food. I tell them salt contributes to their high blood pressure. I ask all my patients about smoking and alcohol, if they drink more than one a day I tell them that is too much and they need to cut down.

I: Do you refer them to a dietician or outside to get help?

DR: So, most of the time dietician visits are not covered for hypertension, so no I don't because if it's not covered they won't pay for it, won't go. They hate paying for things when they have insurance and it's not covered. So we do have handouts in the office, we can give 2-gram sodium diets, 4-gram diets; many have

comorbid conditions so if [they are] diabetic, they need to follow [a] diabetic diet.

I: You mentioned diets, do you have materials you give them?

DR: We have some; [we] use DASH diet handouts or give them family.org weight loss. I don't get into caloric talking, not my expertise, but also too much information and their head spins!

Exercise. Exercise or activity as a lifestyle issue was the least described or addressed by all of the physicians. Two physicians asked patients about the type of exercise in which they engaged, and gave a recommendation. One physician demonstrated a lack of understanding in current thinking on optimal daily exercise by saying "I recommend at least 30 minutes walking a day." Physicians noted that the reason most people did not exercise was due to lack of time, and they did not mention the theoretical framework of time versus benefit. One physician noted that people in general were exercising more.

DR: In general [there are] more people exercising than before. In my parents' generation how many of them were jogging? I play basketball two times every week. Years ago no one over 50 years, no one played basketball.

DR: Reason for no exercise? Too tired when they get home from work.

DR: I highly recommend exercise programs; what I get back from patients is they just don't have time, money to join the gym, so I sit down and figure out what might work for each patient, what do they have at home, what type of equipment, what do they like to do?

DR: Education, sure it helps, but a lot of educated people are deprived of time, so they don't have time to cook or exercise.

Smoking. All the physicians stated that smoking rates in their patient population have declined. One physician believed the remaining smokers in society seemed to do so for reasons of anxiety, depression, or other psychosocial disorders.

DR: Personally I think we are seeing a decrease in smoking. If they are smoking I ask them if they want to stop, because I have learned over the years that spending an hour about stop[ping] smoking if they don't want to quit is futile. If they say they want to or yes I am thinking of it, I ask what they tried before, what made them go back to smoking, to find out what had worked before. I try to get more information so I can figure out what has worked in the past so we can address this.

I: Do you have a formal plan to address a person's readiness to stop smoking.

DR: No, there is nothing I have that is written, to say precontemplative; just getting a sense by talking with them, to get a sense about where they are at in what stage. If they say I like smoking or people tell me I should stop smoking, I tell them you know the ramifications. I will be here if you decide you want to stop.

DR: Well, smoking is in a way a little bit easier because they come in knowing it is something wrong, and most chronic smokers already have some symptoms: short of breath, chronic cough, less stamina, umm and I tell them it's okay that they have tried four, five, six times because studies show most [people] that try to quit do so several times. I do tell them it is probably one of the most addictive substances known to man and then I offer whatever medications we have, and encourage them, and some do quit and some don't stop.

I: Do you see less people smoking these days?

DR: I think I mean that we know a vast majority of people have stopped smoking, but I think the people left have comorbidities that make it

more likely they will smoke. I was reading this paper and they were talking about very high number, about 80% of current smokers have anxieties or depression, one or the other or both. I think the media has done a good job of promoting smoking cessation and I think that has worked, but now we have selected a group of people that use it almost for medicinal purposes.

Medication. Medication compliance was noted in the literature as a major factor in hypertension compliance. In a meta-analysis of hypertension interventions, Schroeder, et al., (2004) concluded that adherence to blood pressure medicine was the single most important variable to control blood pressure; however, the intervention that best addressed medication compliance was not known. Seven of the nine physicians in this study believed their patients were successfully taking their blood pressure medication on a daily basis; one physician believed patients took medication 50% of the time; one physician believed patients took their medication 80% of the time. All physicians believed that blood pressure medications were inexpensive and side effects were not a barrier to compliance.

DR: If you find a patient that takes their medication 80% of the time, I think you are lucky. Fortunate for us the first medications for blood pressure you needed to take three-four times a day, but medications today are much more forgiving. I don't tell the patient

that if they miss a dose or two they are still protected because the effect of the medication lingers on.

DR: Every visit at the beginning I go over the medication list and ask if they are taking the medications the way they were directed to. I put the list in front of them.

I: Do you believe they are honest with you?

DR: Yes I do, they are.

I: Does the patient say side effects are a reason they don't take medications?

DR: Yes, but [a] small portion. There are many medications; we can find something that works that doesn't cause you a problem.

DR: My patients are up front. If they don't like something they call me, stop it, and tell me. A few non-compliant patients with medications, mostly male, younger, forget to pick up Rx [prescription], didn't take it, and forget appointments. I don't ask "are you taking the medication; are you having [a] problem with

medication”? I ask “how are you feeling, any problems with the medication?”

I: Do you use drug assistance programs for patients that do not have coverage for medications?

DR: We do, [and] we use a lot of the \$4.00 prescriptions. For some of the patients we go to the drug companies. We don't keep samples in the office anymore; too much work.

I: Do you use coupons?

DR: Yes, but a lot have a very limited time span on them or by the time they remember they have it, it has expired, so limited use.

I: How do you determine if a person is taking medication?

DR: I just point blank ask them. Are you taking it? When was the last time you took it? I noticed on my refills you should have needed it before now. Well they say this or that happened or “I just forget.”

I: What do you think in your population is the rate of taking medications?

DR: I would say it is about 50%

I: So the population you see here is mostly public aid?

DR: No on the residency side it is public aid, but the faculty side there is managed care across the board with limited Medicare in this office. I don't know anyone that hasn't had to take a chronic medication; you have no idea how difficult it is to take it every day.

I: How do you help them make it easier?

DR: You give them tricks of the trade: pick a time of the day, set up a pillbox, what do I do? Everyone is busy; it is very hard to take a pill every day.

I: Do you find the majority of the patients in your population [public aid] understand the importance of taking their medication; is that one of the biggest areas of noncompliance?

DR: I think most people understand, they don't put a lot of weight on the implications of not taking their medication, they are usually repentant/contrite and say "I am bad" when they don't take the medication. I don't think it evokes: "I really should take this medication."

I: Do they [patients] express fear in taking the medication?

DR: I get that a lot when they take the lipid lowering medications. It is going to hurt my liver, damage my muscles; they just periodically stop it. A patient was taking Lipitor and then her cholesterol went up and I said you are not taking your medicine are you, and she said I stopped it because my elbow is sore. I ask did the elbow pain get better, she said no, so I said then it is not your cholesterol medicine is it?

Ability of Physician to Handle Chronic Disease. All physicians expressed concern over the ability of the health care system, and physicians in particular, to handle the amount of chronic disease in society today. Physicians expressed concern over the knowledge base needed to manage chronic diseases such as hypertension. Physician education was noted to be acute-care oriented rather than chronic-care oriented, and treating symptoms, rather than managing chronic conditions with multiple resources, has been the standard. One physician expressed concern about the number of available physicians and the work ethics of new physicians to handle the aging population.

DR: I know they say over 65 years, 50% of people will have hypertension, average family physician, you know the newer physicians don't want to work like we used to work so that will be a problem, a lot of people don't want to take Medicare because

they don't pay us much. So we will have all these nurse practitioners in Walgreens [to] do most of the primary care.

I: So what do you think about that?

DR: I don't like it. Sure they can check blood pressure they can click on what to do, but I don't know if they have enough training and good enough for the long run, but that is what we are going to have to do in the long run because we won't have enough family medicine/IM physicians for the aging population. I don't know what is happening in the remote areas, probably worse.

I: Is the average physician today ready to handle the volume of chronic disease?

DR: Well I think we are ready, I think, to handle just the medical portion of it, but what everyone is looking at this medical home stuff with social worker and dietician, you have all the. . .well that is way too much; first you don't get reimbursed enough and not enough time or money in most offices to provide all the services that people think these chronic disease patients should have and I think we all believe they should be available to patients with chronic diseases, but who will pay for that? Most of our patients

are public aid patients, and the state just dropped the contract for the care managers for these diseases.

I: Is the average physician today ready to handle the volume of chronic disease?

DR: So not from my standpoint as an internist; I don't know as much about family practitioners. I am in my own world of internal medicine; multiple problems exist when I see people. I start out with history of present illness and review all their problems. I can see 10-12 things, conditions I need to address, very uncommon to see someone with no conditions. Sometimes there are only eight slots in the EMR [electronic medical records] for assessments; I have run into people that have more than eight problems to address and there is nowhere to put them, not enough places. That is a lot, but I had it happen yesterday. I ran out of slots on the assessment form when I was conducting the yearly exam.

I: Is the average physician today ready to handle the volume of chronic disease?

DR: I don't think our current medical system is set up to engage patients at the level they need to achieve those goals and the onus

cannot be on the doctor to make people change lifestyle. They [changes] have to come from [the] patient so the incentives need to be there instead of on us. Doctors need to know that patients need to come in X number of visits and you need to touch on these points, but once you have touched on these points that is all we [doctors] can do.

I: Do we need to look at the doctor's office as a place to come to help us stay well, not just a place to come when we are sick?

DR: Absolutely.

I: Do you think people understand that?

DR: No, they view [the] doctor's office as a place to go when sick and most doctors assume a role of taking care of people when they are sick. . . . taking care of people when they are well is a murky, harder to define job description; [it] takes as much if not more time to ask than the management of illness. By the time the person has high blood pressure I can provide you this medicine. But that visit is way down the road and a lot easier than talking about your BMI and the chance of developing diabetes in [the] next 5 years is 80%; that takes more of my time and is more difficult. I have to counter

every argument. I have to be innovative to help them achieve a goal. This is time consuming.

I: Is it a different skill set?

DR: Yes and not everyone came in to medicine to be a health coach; they were trained to identify disease processes and treat them.

Current Office Practice. Physicians seemed to have a method to approach the patient with a diagnosis of hypertension. In interviews, patients referred to this as a “set agenda.” Eight of the physicians spent the office visit talking about lifestyle issues to the patient. One used a pictorial guide and the Framingham Risk Assessment Tool as part of her response to a hypertension diagnosis. All physicians believed the patient already knew they needed to lose weight, exercise, take medications, or stop smoking.

DR: One thing I am using is the Framingham score. That is a nice tool to help someone see what difference does your level of cholesterol make; how can we increase quality of life. I think this is a good tool; an eye opener for my patients and for me. I used to use the five risk factors but that doesn't bring it home like Framingham. I also have a book I use from the American Dietetic Association. Very nice book, very good pictures; shows portion sizes, pictures NOT words!!

I: Wouldn't you say something designed like this, nice pictures, speaks more to the patient?

DR: Yes.

I: Is that true regardless of the education level?

DR: Yes, sure.

I: So in one sense we may not be helping our long-term goal with patients by directing them to web site?

DR: If they have to go to [the] Internet, I tell them go to MayoClinic.org. It has few words BUT this book [showed book again]. I hand out this book all the time.

DR: What I do is spend quite a bit of time going over lifestyle modifications/changes with patients. I talk about diet modification, salt intake, fat intake; I tend not to send any of my hypertensives to dieticians, due to difficulty in coverage. I try to talk with them about how you can eat some of [the] food they like and yet do it in a way that is healthier. I talk to them about how to look at labels. I know you can go online and show people how to read labels. I tend not to do that, maybe due to lack of time; I don't really have time, unless I really have a patient that is struggling with the concept, or

never looked at it before. I say go to where it says sodium and look at how much per serving, remember per serving, and keep a running tally on a notebook or pad of paper of how much you are eating in a day. Try not to add salt to anything when they cook, be careful about adding salt, what are other spices, what are alternatives; that is primarily kind of keep it around 2 grams.

I: Do they know what that is?

DR: A lot of them do. I give [an] example: something has 500 mg is about $\frac{1}{4}$ of your daily amount. I try to give them an example of specific foods and they say wow I didn't think that had so much salt. I had a woman who had several scripts but never filled them and she didn't realize the danger of not treating her blood pressure until I told her what could happen to her body. She was shocked and decided to take her blood pressure [medication]. I hate the word diet; the only people that should diet are ones that need to get into a dress. . . that need to lose a small amount of weight in a short time; otherwise it is a lifestyle change, not a diet. Change your lifestyle; I almost never use diet with my patients, I ask them are they ready to make a lifestyle change and they say "what?" Then I know they are not ready. I strongly discourage the word diet. Not

that I don't give them any information but I know they are not ready to make the changes.

Professional Support. Professional support addressed what the physicians said they offered or did not offer—for example, active help or encouragement—and how they felt about the effectiveness of that support in assisting patients to comply with hypertension guidelines. Professional support can also come from outside the physician's office. One physician noted that Weight Watchers was successful because of the support that was offered, and was convenient and realistic for most people to follow. Support (or a lack of support), also came through follow-ups by the physician's office staff or other entities in the health system, such as pharmacists.

DR: I think this is why Weight Watchers works. Coming back to Weight Watchers every week reminds them what to do. They don't have a calorie system but a point system. The problem is not a particular food that makes you gain weight, but the amount of food you eat. So they say if you stay within these points you can eat whatever you want.

DR: I think some of it is the pharmacist, some of them overstep a little bit the information they give to patients and it scares them. It puts us in a hard spot because I don't want them to call me about everything. But the pharmacist can give scary information so we

need better communication with [the] pharmacist. I know of some pharmacists that said, oh your doctor gave you this medication? And the patient says is there something wrong? And the pharmacist says oh I am sure it is all right. . . but that left a doubt/question mark in the patient's mind about the medication and with one side effect the patient stops the medication; they think I gave them something wrong.

DR: There are life style issues that come to play in hypertension. I don't get the impression that people don't understand that, but get the impression that of all the things I have to offer about controlling blood pressure, that is the least thing they want from me of all the things I have to offer them.

I: Why are they the least interested do you think?

DR: Because it is hard.

Support in lifestyle change was thought to be critical by the patient participants but not always expressed by the physician to be their role. Support could take the form of return visits to measure patient success. Group visits were brought up by all the physicians as a way to support patients. The lack of reimbursement, physical space, and time to do group visits were deterrents to this support option.

DR: I read all those things about group appointments from [the] medical academy; I might try one project like that next year but I think the group is okay, but people like their privacy; they like the one-to-one time so the group is just extra. I cannot take personal time away from people. The hospital offers these classes. I try to inform patient about these but some don't do it. I will try it as a onetime project for an assignment. But it will have to be done on a Friday, and that means more staff time. The individual time with the patient is important to me.

DR: We have been throwing around group visits for some time [in a practice with many public aid patients], but we do not have the space and we are open until 8 pm every night, so we have no time; our patient population is very transient, so we have looked at group visits but couldn't figure out how to do it.

DR: I wanted to introduce group visits this year but I don't think the reimbursement is there yet; but instead I had to focus on the changes that need to be made to meet MU. [Researcher note: MU refers to the government requirements to receive money for the conversion to electronic medical records (EMR).]

Only two of the physicians had any formal mechanism to track patient's response or feedback to support their care. One physician created a workbook he called a life planner, to help patients track their journey to good health. His experience showed that only one in 15 patients brought the planner with them and used it the way it was intended. He stated that every visit his patients received written instructions and they left with his typed notes. The notes said, "Bring your life planner with you on your next visit to keep it updated." The doctor did not notice a reticence in patients to ask questions, however, the following was also stated.

DR: I don't think they are shy about asking questions as long as the information is going one way. They are appreciative when I give them homework; they are not appreciative about that when I say the biggest problem is your weight. When you return in two months try to lose. They either cancel the next visit or they come in and say I didn't do that work, the homework.

One physician cited evidence, not theory in addition to evidence, as a way to show patients why hypertension compliance was important:

DR: Hypertensive patients are embarking on a lifelong treatment plan and geared toward the prevention of disease. It's not necessary to treat an acute problem; so now you are asking them to take one, two, or more pills per day and asking them to change their habits and unless they themselves know exactly why and what the reward

is, compliance will be a major issue. It is very well worth it to invest the extra time with them in the beginning.

I: How do you explain the reward to them?

DR: That is probably the easiest part because you can back it up with studies. There is reduced risk of strokes, reduced risk of heart disease and kidney disease, and these are not opinions anymore. There are some excellent studies to give you true numbers; the patient can see 20-30% reduction in having a stroke. That is pretty significant. I always try to point to genetic makeup so I ask them about their mom, their dad, their siblings, if one of those people suffered consequences as a result of hypertension that is, again, a strong incentive. Involve the patient, make the patient themselves the doctor, it's not on me. This is what you need to do; if you doctor yourself properly then you lose weight, etc.

The following physician gave his patients a goal, however nothing was documented or followed-up on to support the patient's progress or outcomes.

DR: I ask them to lose a pound a week, stop smoking, start doing 5-10 minutes a day of exercise, come back in 4-12 weeks.

I: How do patients accept a direct approach?

DR: Surprisingly well. They look to [their] doctor for directness, they want the doctor to dictate to them what to do, even [someone] educated and sophisticated; high up on [the] corporate ladder will acquiesce to [a] doctor's recommendation. This is not a democracy; it needs to be a benevolent dictator. I think patients look for that.

I: What methods do you employ to assist patient with compliance to stop smoking, lose weight?

DR: I do emphasize lifestyle. Not sure how willing they are to do it; patients think they are doing the best they can. I don't make the idea of being overweight—fat—as the blame for their hypertension; the media does that enough. If it is a new hypertensive patient I give them a month or so to change weight, etc. letting them know that 5-10 lbs. of body weight loss can decrease hypertension. Break it down in small chunks. They do come back. I ask them “have you done everything you think you are willing to do or can do”? If they say yes. . . I try not to make the hypertension their fault due to weight, lifestyle, etc.

I: I like the picture you were painting about your office, a friendly supportive place to come, and social place to come, positive, not punitive, a partner. How important is this to compliance?

DR: I think it is important because if they are doing bad things they hear positive things in their head to remind them of what they should do and my positive words echo in their head. If it is a friendly person trying to encourage them in a positive way, then it is not hurtful to them.

DR: We need to educate, but once that is done that is our part and the patient needs to be responsible.

I: Do you ask the patient to return to [the] office for repeat B/P [blood pressure] weight checks, smoking progress?

DR: Yes, I do.

I: Do they come back?

DR: Some do, some don't.

I: Do you find that some people resent you asking about their lifestyle? Do they think you are intruding, or do they appreciate you asking about it?

DR: [pause]. . . I try not to be paternalistic; I usually tell them what the general guidelines say, tell them this is what we used to do. Guidelines recommend three, four, five meds with your hypertension to control it. If you want to go slowly okay, but I don't want to spend 2 years to control your blood pressure.

Physician/Patient Relationships

Role of Physician/Patient Relationships. All physicians thought their relationship with patients was important for compliance to hypertension guidelines. Trust was cited as a factor in building good relationships. All nine physicians expressed concern that the administrative tasks required by insurance companies and the government were negatively impacting the physician/patient relationship. One physician stated

DR: Before we shake a patient's hand we are asking them to sign 15 pages of paper. This creates mistrust so if we create mistrust in the relationship there is no way we can create a healthy personal relationship to impact change, but that is where we are heading. Um I think what is happening, the very system we were talking about and the relationship and how a good relationship can help a patient, I believe the better relationship is slowly going away and replaced by protocol-type medicine, so no time to think, no time to

reflect, nothing else matters but where does your number fall between this and that so this is what you do next.

I: So you don't see we are moving toward greater relationships with patients but rather moving away from relationships?

DR: Yeah, exactly.

I: So the system is pushing us away from where the patient really believes/wants, and where we want to be with increased quality and decreased cost, patient-centered and patient responsibility?

DR: [audible sigh] I believe that these people making these changes are not idiots, they want to make these changes. They are living in the same world we live in. Some of them are physicians and they know how important relationships are. They know it is so much easier to close the door and it is you and the patient and you make the decision. I believe they put all this aside and look at the big picture. So they say if I treat 1000 patients with this protocol and I get 80% success that is good. So I really don't think they think what damage they do along the way.

DR: It makes no sense to dirty the relationship because you miss the medication; so just reinforce how important it is, stress the

importance of medication, and move on. I have a lot of patients that miss the appointment and they say “I didn’t want to come because I was really bad, my blood pressure is high.” Almost like they are going to be reprimanded, you know? And I think that when you reach the point where the patient feels this way [then] this is a good relationship with the patient.

I: So you really think there is a connection between doctor/patient relationship and compliance?

DR: Yeah, it is there. I try to connect with the patient. Sometimes I bring the family members into the situation: you want to be around for your children? Yeah, I have a good relationship most of the time, with a new patient it takes time. It takes spending time to build a relationship that is what it means; you cannot just run from one room to another. I just hope all this administrative stuff, new EMR, doesn’t take my time away from the patient.

DR: So I think the doctor/patient relationship is very important. It needs to be a strong one so they understand what is going on; so you don’t just throw a pill at them. I tell them this is a partnership.

I: Do you think the interpersonal relationship is important? Do you think patients respond to the interpersonal relationship and increase compliance?

DR: Yes, I think they do if they know someone is worried about them they do better, more motivated; but you come across some people that is the total opposite reaction. Just give me a pill, don't tell me what to do, but that is not the majority. I think that is part of the relationship, worry about them, you have to project that and believe that too.

Length Of Time Spent With Patient. Physicians cited time with the patient as part of the issue regarding physician/patient relationships. It was noted by all the physicians that having a private practice versus working for a hospital or other organization gave them the freedom to spend more time with patients. Respondents believed the routine 15-minute appointment was established as a result of the acute care model that treats illness. Many thought that additional time with the patient was needed to treat chronic diseases such as hypertension. The private practice physicians who spent additional time with each patient expressed concern over rising expenses and the amount of time they could afford to give. One physician discussed the idea of changing practice methods—perhaps to a team practice—to adjust how time was spent with patients.

I: Do you feel you have enough time with your patients to educate them?

DR: I do because no one governs me and tells me what to do and how many patients to see. But if I work for somebody, I know doctors are joining hospitals but I know I won't be able to take time with my patient because I will have to see 25-30 a day.

I: Do you feel you have enough time with your patients?

DR: I see 15-20 a day at most. I have to know my limitations. People come by word-of-mouth; people like me, and that provides satisfaction to me and to the patient.

I: Do you have enough time with your patients to educate them; is time an issue?

DR: Of course not, no doctor does, we have about 15 minutes per patient.

I: Who sets that time?

DR: We financially look at what it costs and how many visits we need to cover the costs. It is enough time for a cold or UTI [urinary tract infection], but 15 minutes is not enough time to teach about chronic disease. I seldom have acute care visits so I have nearly all chronic, 15 minutes to cover hypertension/diabetes etc.

I: So we really have a [health] system set up for acute care, not chronic care, so [now] we have set up a system for chronic care.

DR: Yeah that is right. The ideal is 30 minutes for a disease management patient, but that would mean I only see five-seven patients in a half-day.

I: Is the length of time you have with your patient enough to educate your patients? Do you feel pressured to move swiftly to have enough patients to pay the bills?

DR: So I think that. . .umm. . . in my situation I have always spent more time with the patient; the consequence is I am willing to take less home as a result.

I: So your time with a patient is not a deterrent [to compliance]?

DR: No, not in the practice model I have been in.

I: And your patients say they have [enough] time with you?

DR: Yes.

I: Is time ever an issue for taking care of patients and assisting them with compliance?

DR: Not the way I set up my office practice. I have not made time the constraint. I do allow time for my patient visits but I made a conscious decision and it definitely affects my bottom line, so I make way less than the average for our area. I make less money but I sleep better at night knowing I am the kind of doctor I always wanted to be. I make less money, but as long as I can pay my malpractice and my rent. . . but as reimbursement declines it is more difficult to stick with this ideal office view.

I: Do you take the time with your patient even though you don't have the time?

DR: That depends on how severe it is. If I think I can give them some bit of information and bring them back then I do it. If not, then I get behind. We have a large practice so we can shift patients; we are trying to develop a team mentality so it is a team that sees the patient. We are just starting to get into that pattern.

I: Do you have patients come back and say the time you took with me changed me?

DR: I had one the other day that said that [surprised and pleased tone of voice]. It's not easy. I think the patients like the time I give them.

Health Insurance. Health insurance as a barrier to hypertension compliance was not an expected outcome from the physician interviews. However, insured patients rather than uninsured patients proved to be a repeated theme. All nine physicians spoke forcefully to the burden and time wasted meeting insurance company requirements, rather than time being used for extended patient visits and patient education. Strong emotion was displayed when describing insurance company intrusion. For example

DR: I think the insurance company should stop harassing us and I would have more time to care for my patients. This preauthorization crap drives us nuts; it sucks up our time. It very rarely ends up the patient doesn't get the imaging that is, now drugs, it is even more harassment and frequently they will force us to switch drugs when the patient is under good control and I use inexpensive drugs, I use generics for the most part. So this ace/arb [angiotensin-converting enzyme/angiotensin II receptor blockers] thing they want me to switch, forcing me to go two aces before the arb, when the arb is generic. That is really harassment. It used to be we were harassed on the images; now we are harassed on the meds. We are a practice that uses generics almost exclusively and that is not good enough. I have an expanding folder on my station desk with all this insurance stuff, pharmacy and notes in it: did you know your patient. . . . Your patient has this problem. . .do you know this is an interaction. . . did you know they didn't have this

test. It all goes in that folder, I am not putting that in my medical chart, and they want me to change drugs.

I: Would you consider doing it?

DR: I won't do it. I hardly ever go into this file. They tell me what I already know, they get in my way, and they make me waste more time.

One physician respondent cited insurance as the reason her daughter wanted to avoid primary health care:

DR: My own daughter went into emergency medicine. Mom, I don't want to go into primary care. I am not going to sit at a computer and do all these things for the insurance company; it's too much a waste of my time. All of these requirements are a deterrent.

In addition, physicians stated that insurance did not pay for the services of a dietician, Weight Watchers, or exercise that could assist a person lose weight and control hypertension.

DR: I tend not to send any of my hypertensives to dieticians, due to the difficulty in coverage.

I: Do you feel the current health care system assists you in increasing patient compliance or is it a deterrent? Why or why not?

DR: In the case of poorly controlled patients, if there was some reimbursement for some interim care maybe over the phone, e-chats, etc. I think I need to see them every two weeks, or have someone follow them more closely, but there is not an incentive for those in poor control. The current system is a deterrent to that kind of interim care.

I: You have mentioned insurance a lot [in our interview].

DR: Yes. . . I have, people don't like to pay for things if not covered by insurance. It does not pay for preventative things like it should. [There is a] disconnect between what insurance will cover and what patients think it should cover. It's still not paying for preventive services like it should, and we all know that.

I: Do we need health coaches in the doctor's office?

DR: Yes, if paid for, absolutely. If the health coach is going to get a decent hourly wage, the doctor cannot employ that person from his salary. If X number of people had lifestyle goals [that] needed to be watched and coach assistance, then there should be a benefit

paid for them to receive life coaching from insurance or premium benefit.

I: So that is something the insurance company could assist with?

DR: Perhaps. I have a problem with putting this back on the insurance company. I still think if you are paying X number of dollars per month, if you are trying to protect yourself against catastrophic illness, the couple hundred dollars I pay a month is not for my ongoing health expenses in this way. We can't look to the health insurance industry to pay them more. [Health insurance] is a type of entitlement attitude that prevents people from taking on the full responsibility of their health. If we can't take out \$60.00 to pay for a health coach, why should the insurance company do it?

All but one physician thought that insurance companies should offer incentives for patients to meet their health goals, rather than punishing the doctor for noncompliance by decreasing reimbursements to the physician.

DR: People should be incentivized to participate in lifestyle change programs to meet their weight and blood pressure goals, in order for decreased expenses to occur down the road.

I: So that might be a better solution to hit it at the patient level rather than hit the doctor with incentive or penalty?

DR: Right. Easy one for me to agree, it makes good sense. I don't know where that decision is made to say okay, all people whose BMI is over X should be eligible for a benefit, or for X visits with Weight Watchers.

I: Do we need incentives for patients instead of the physicians?

DR: Yes I think so. People work better with consequences rather than praise; they seem to get it done faster if we take a vacation day away rather than say wow you are doing a great job. There is a little bit of a slippery slope for doing things like that, but smoking and obesity you can do that.

The current trend, based on my professional experience with some major insurance companies, is to decrease physician reimbursement for failing to meet patient compliance goals. This results in less physician time with the patient and the desire of physicians to purge their practice of non-compliant patients. One physician noted

DR: Are we going to let the insurance company manage them (patients)?

Health System. The health system and the health insurance industry were tightly aligned, according to physician responses. Eight of the nine believed the system needed to change to increase compliance and improve outcomes. The exact way it should change

was not well defined by the respondents. Reimbursement change was a primary idea, as well as reducing the administrative burden. One physician stated that increased pay to primary care physicians would result in attracting better physicians to improve compliance and outcomes. The doctors also believed that patients needed to change as part of the system overhaul.

I: Do you feel the current health care system assists you in increasing patient compliance? Why or why not?

DR: We are paid on volume.

I: Do we need to move off that system?

DR: We have to move off that system. To be honest, I don't know what the perfect system is, but you have to value the primary care doctor and I know there is banter about what percent to pay primary care docs compared to the specialist. Seventy to 80% of the specialist reimbursement should be paid to the primary care physician. We could attract better primary care doctors that way. But we need to do it based on complexity, time frame, not the volume of patients. I am not the expert on that. Maybe based on RVUs [relative value units]; not entirely sure it should be pay for performance; P4P is the big white elephant, but I don't know if anyone really knows

how that works to be beneficial to everyone. You can do everything right and still have bad outcomes.

I: Do you feel the current health care system assists you in increasing patient compliance? Why or why not?

DR: No, the system doesn't currently assist us. The lack of belief as to what people believe the primary care physician is or should be. Until doctors are rewarded financially and decrease medical malpractice, it won't take off enough. Another aspect—some people agree with me and some don't—is the need to re-educate the American public. They want it now. I am one of them so I know this: immediate gratification. "Let me see who I want to see, for what, I need this." The whole disconnect, you really should have a point person to be the liaison to go to and then you may not need all that extra technology. Now you may talk with a cardiologist and they would totally disagree with me. I believe if I can help a patient decide what they need to do or who to go to and when, that is my role. [The] primary care physician is not an invested interest for anybody. I understand it is getting there but it is getting there kicking and pulling teeth. I would hate to see it get there as the old gate keeper as that makes it an adversarial thing.

I: Do you feel the current health care system assists you in increasing patient compliance? Why or why not?

DR: No, not yet. The health systems aren't in place to make it happen. We don't have good systems. Everyone [is] delving into the EMR [electronic health record] and not in the same way without good panels, ability to retrieve data; I don't think anyone is ready to do it very well yet. It is a free market and we can argue rather that is good, bad, or indifferent. Everyone went forward without planning and it is not as organized as it should be. I am not saying other countries have the best and brightest, but they have been more organized.

Ideal Office Of The Future. The physicians were asked if they could imagine the ideal office arrangement to build relationships with their patients and to improve hypertension guidelines compliance. The respondents were often conflicted about the role of mid-level providers, such as physician assistants and nurse practitioners; however, they suggested mid-level providers and coaches to assist with patient care and compliance. The examples provided envisioned a larger, resource-rich office to replace the current one-two physician practice. Individuals who already worked in that model could not afford additional space or resources to hire mid-level staff, provide group education sessions, or the technology needed to engage patients of the future.

I: Have you given thought on how you would change current office/practice to increase compliance?

DR: I think patient portals engaging the patient with technology, personal health records, and health coaches are the way to go for the future; the new world is technology-based. A nurse coach can be most effective when the patient has a health record that they and the nurse can interact with. We don't know enough about technology. Yet someone needs to do research on these things. How do we get people engaged in technology to interact with their health record?

I: Are there certain patients that would never engage in technology?

DR: So if not, then you are back to the same old tools with that person.

I: What about an interactive iPad that has pictures that move on a screen; some feel like the visualization impacts them rather than taking home six pages of words.

DR: So using the technology to create work boards, but somehow it has to get paid for. Yes I would like to have that kind of tool; if you find it, let me know. I will test it. I think that is a great idea, but I can't afford it.

I: Have you given thought on how you would change current office/practice to increase compliance?

DR: And if the government does not want to pay and they are cutting down, I don't know what we will do. Overhead is increasing, IT is increasing, I am going to take a pay cut for me because I can't cut my staff pay. So, a lot of requirements. I find myself more stressful now than years ago. I don't think the specialists feel stressed. They still get a lot of money and they only deal with one thing, not like us. We deal with a thousand things like I do, so if people like specialty they want to go there; if not then you have to take less.

I: Have you given thought on how you would change current office/practice to increase compliance?

DR: I don't think it all has to be done by the physician; I am not a fan of mid-level providers, but having said that I think there are some things they can do. I truly believe in case management. I think having a case worker who gets to know the individuals and the family, it adds another layer of someone who cares about the person, someone to train and educate, someone that knows how to educate, maybe a dietician. I think those are very helpful, you want to get to the next level where you have a pharmacist in the office

that can talk to them about their meds and then a therapist that can help them with other needs.

I: So midlevels that provide education and social support?

DR: Absolutely! That is my opinion.

I: Can a mid-level take care of a sore throat?

DR: Of course, but what you find is over-testing or missing something. Now doctors do the same thing, I am not saying that. I think midlevels, if they [patients] are in places where they don't have access to care is a different issue. I get that, but I am not sure that is the direction we should go.

I: You mentioned your nurse doing some of the prework before you see the patient; are there other ways to rearrange your office to increase patient compliance, or are they working at their highest level?

DR: Not from the compliance issue but productive, yes, I have more ideas to be more productive to help me as a physician make me more money. But not improve patient compliance, not to help with the compliance issue.

I: You mentioned something very interesting: organization of your office for productivity versus organization for patient compliance. Are they the same?

DR: Encourage compliance but not productivity, so if you have staff members assist with care management, *that* could improve compliance but not be productive. So in my perfect practice the whole coaching would be another expense because that person would have their own business model. Currently there is not a business model for it. They could have their own revenue stream different from mine; we could have a business associate agreement with them and have access to patient charts. I know a health coach, being certified for a health coach, she could be in my office so she would seem like she is part of me. She could do health coaching for my patients and for other doctors as well.

I: It is not being reimbursed right now?

DR: I don't know if it is. I can't do the billing for that. In today's world I can't guarantee this would make me less productive, as it is it is hard enough to make it. I think in today's world the health coach is a good idea, a great way to improve compliance, but my nurses spend all their time on the phone with insurance companies with

preauthorizations and paper work and that is doing nothing for my patient!! But it is saving the insurance company!

Physician Awareness of Hypertension Compliance Guidelines

Dissemination Model. The dissemination of information occurs spontaneously through informal efforts or actively through formal, centralized efforts, and the degree of success depends on an organization's internal environment (Yuan et al., 2010). Three factors are related to internal environment: (a) degree of perceived need to change practices, (b) degree of openness to external sources of information, and (c) degree of internal championship for the change (p. 8). The impact of organizational influence on the physician as it pertains to guidelines compliance is also a major factor in individual change (Yuan et al., 2010).

All nine physicians in this study were aware of the JNC-7 hypertension compliance guidelines. All cited the use of journals and occasional lectures to keep up-to-date with the guidelines. These two methods represented informal physician efforts that occurred spontaneously. None of the physicians disseminated the JNC-7 hypertension compliance guidelines to office staff to instruct them in proper blood pressure measurement techniques. The following was an exchange about JNC-7 guidelines with one physician:

I: Do you agree with what is in JNC-7 for hypertension guidelines compliance or is it not one of those things you use?

DR: No, my bible is, you know, my own experience, my years of practicing, and it is also the patients' co-morbid conditions. Rarely do I have a patient with just hypertension. I do have literature I go to and education I do on my own.

The health system to which all but one of the physician participants belonged exerted no external or organizational pressure or influence to produce change. In addition, the internal environment of the organization did not have a champion for change to increase methods of improved guidelines compliance. The only external pressure cited by the doctors to influence the dissemination of change was the insurance companies and the government. However, neither of these exerted effective positive change in the minds of the physicians.

I: What evidence for practice do you base your current practice of care on for hypertension treatment?

DR: I use JNC-7. I also use UpToDate.com [an online resource synthesizing the latest medical information for physicians and patients] and attend the lectures whenever I can. Yes, I keep the guidelines in mind and I attend the lectures whenever there is one so I can learn more.

I: Do you know the top five JNC-7 standards?

DR: Top five medications

I: Top five policies and procedures as well?

DR: I don't know if I can name all of them, but watch diet, watch salt, medications, stop smoking, diabetics lower blood pressure, if high enough start which meds when. I know there are 17 of them, but I don't follow in order, but I know of them.

I: Are you aware of JNC-7 guidelines?

DR: Yes

I: Any other guidelines you use?

DR: No, I use JNC-7. I am waiting for JNC-8. I tell people that the new guidelines are probably going to say 130 and I think they will be difficult, hard to get people under 140. It may be late because they are afraid to over-shoot like we did with glycemic levels. If we overshoot and have people faint, crashing cars, and hospitalizations, we will have more problems and less compliance and we will have a hard time gaining respect.

I: Are you aware of JNC-7 guidelines?

DR: We try to follow JNC-7 with the idea you have to look at everyone as an individual. We try to do a step-wise management. We look at

what other organizations say, such as cardiologists, renal people.

As long as you understand what their other comorbidities might be; if you don't see that or realize what else is going on you will miss the boat.

I: Does your staff understand JNC-7 steps like how to take a blood pressure?

DR: No we don't do anything like that. I mean the staff doesn't do that. I take all my blood pressures over. Once you have done the interview [you] re-take the blood pressure. I don't think people really know how to take a blood pressure very well but with the time crunch I am not sure anyone is doing it very well.

I: Are you aware of JNC-7 guidelines?

DR: I do know the JNC-7 that is a big one. I attend programs, read articles by the American Academy of Family Physicians, stuff on [the] Internet, so not one source or one person, no I get the general guidelines. I can't quote you this study or that; I remember the general guidelines that come across. I remember that CKD [chronic kidney disease] patients should have B/P of 120/80.

DR: There are two words I use for evidence: George Bakris. He is the hypertension guru in this country.

I: Are you aware of JNC-7 guidelines?

DR: One thing I am using is the Framingham score; that is a nice tool to help someone see what difference your level of cholesterol makes and how can we increase the quality of life. I think this is a good tool, an eye opener for my patients and for me. I used to use the five risk factors, but that doesn't bring it home like Framingham.

Self-Efficacy Model. Self-efficacy is a person's belief that she or he can perform a certain action related to personal behavior and/or the social environment to produce a desired outcome. In other words, self-efficacy is a belief in one's own competence. Self-efficacy was shown to develop from four sources: (a) performance accomplishment, such as participant modeling, (b) physiological states, such as biofeedback, (c) verbal persuasion, such as exhortation or suggestion, and (d) vicarious experience, such as watching someone else accomplish a task (Johnson et al., 2006). Improved self-efficacy increased the likelihood that a person would attempt to make a positive change in behavior (Johnson et al., 2006).

All nine physicians expressed uncertainty in knowing how to evaluate patient readiness, self-efficacy, or health beliefs to impact compliance. In addition they did not believe they had time for this, even if they understood what to do. Adding behavioral

educators to the office was considered a good idea, but the question of economics again surfaced: who would pay for them? All nine physicians used verbal persuasion, such as exhortation or suggestion, to enhance self-efficacy, even if they were unaware of the self-efficacy model.

I: How do you determine the patient's readiness for lifestyle changes?

DR: No, I don't have a way to determine that; no I don't.

DR: Different people/patients have different ways in which they respond to information. I have talked to some people forever about smoking and they don't stop and yet one person thanked my wife for helping her husband stop smoking. All I said is once, on one visit, "you really should stop smoking." That was pretty much it; I didn't twist his arm. Maybe he was ready to change. He did stop smoking, he was ready to change.

DR: I often say whenever you are ready come back to me; otherwise you are wasting my time and your time.

Health Belief Model. The health belief theoretical model was thought to be the most prominent theory to describe findings on health behavior involving acute illness (Becker et al., 1977). Becker et al. (1977) studied the health belief model and its role in

behavior related to chronic illness, as well as “fear-arousing” (p. 348) as a means to influence behavior. The authors suggested that the basic health belief model has been “reformulated and expanded” (p. 349) to include additional findings. For example, a disease-avoidance orientation was identified in the original model, but the new model took into account that positive health motivations existed as well (Becker et al.).

Individuals also employed measures that had health implications for reasons unrelated to health (Becker et al.). Such categories as “health motivation, feelings of control over health matters, faith in doctors and medical care, as well as intention to comply” (p. 350) were added to the expanded health belief model (Becker et al.).

Physicians were able to express components of the health belief model in their discussion of patient compliance. However, they did not exhibit a clear understanding of the theoretical model so they could use it to improve compliance for a given patient.

DR: There are life style issues that come to play in hypertension, I don't get the impression that people don't understand that, but get the impression that of all the things I have to offer about controlling blood pressure, that is the least thing they want from me of all the things I have to offer them.

I: Why is that?

DR: Because it is hard. “I don't have time to exercise,” “not enough time in my day” . . .all that has an effect on their ability to lose weight; they don't think they can accomplish a significant amount

of weight loss to impact blood pressure. I think a lot of people want to do it but don't see it as so important that they have to do it, compliance that is. More people want to look good rather than healthy.

I: Why do you think that is?

DR: The media: everyone is thin and eating doughnuts.

I: If the media brings a different image could we change the emphasis?

DR: I don't know.

Educational Approach With Patients. Visual materials by far ranked highest on the list of effective educational materials according to the physicians, although many were not sure if patients read the materials or understood what they read. One office (most are public aid patients) stopped giving out materials on a routine basis. Most physicians referred patients to websites or the Internet for information. Determining whether materials were appropriate for patients' literacy skills and language preference was not a priority for the physicians. One physician said that obesity and diabetes were not prevalent when he graduated; now he needs to practice a type of medicine he was not trained for.

I: Knowing this is the population you deal with (public aid) do you have materials written at their level?

DR: No, all this stuff costs a lot of money and we don't have that kind of money. We used to use a lot of material from pharmaceutical companies, but now we can't.

I: Who says you can't use them?

DR: The AAFP [American Academy of Family Medicine] says we can't promote something so we can't use their material. I was a large proponent of written material and then you see it left in the waiting room, so for me I think I tend not to spend as much time writing stuff down. I don't think they look at it at all. So it is a waste. I ask them if they have a computer and write down sites to look at when they go home. If they ask me for something I give it to them, but if not I don't give them anything because it is a waste of material/paper.

DR: Yes pictures are wonderful. I often wonder about a Smart Board in my office, I can show them pictures: here is what is happening, here is the heart, here is what happens when you have high blood pressure.

I: That is a good idea; make your office visit 5-10 minutes of teaching.

DR: Exactly, that is what I would like to do. I hear constant misunderstandings. They think hypertension is controlled by the heart, not the kidney. If I had pictures I could show them what is going on. Yes pictures are the best way to answer questions.

I: What kinds of material do you give people to teach them about getting their blood pressure under control?

DR: I talk to them a lot, I make drawings, more than give them anything; again I try to personalize it as much as possible. If the patient feels they are just a number and here is the same material I give to everyone, that is not very personal. How am I different? The patient has to feel that this is like the first hypertension I am treating and I am excited for them to get this under control.

I: What kinds of material do you give people to teach them about getting their blood pressure under control?

DR: I have a lot of material. I have a sheet for the salt.

I: Do you think they read it?

DR: I hope they read it because I give it to them; I leave some in the exam room so when they are waiting they can read it. Umm, I

don't know. It is always challenging how much they will follow through, but my people are more compliant, more educated.

I: So you think increased education helps people be more compliant?

DR: I will say definitely it plays a role, educated people. But what I see, you can be educated but you need the time to do the work.

I: What about the literature you share with patients? Do they understand or read it?

DR: That is a hard thing to know. If they read it, do they remember it?

I: Some offices find patients like books with pictures rather than words. Have you found any difference?

DR: No I have not. I have gone from pictures to words. You mentioned about health literacy, I saw another article yesterday about that and we are woefully deficient in understanding health literacy. I spent a lot of time on my life planner and I put a lot of thought into it and it hasn't been as well accepted as I thought.

I: Education is not always the answer to get people to change.

DR: Right I think people need to be incentivized to change.

Compliance

Patient Noncompliance. All physicians believed patients were too busy, lifestyle changes were too difficult, and patients were not motivated to make changes to improve their compliance with hypertension guidelines. None of the physician responses acknowledged self-efficacy or health beliefs as attributing factors in noncompliance.

I: What are the reasons patients give for noncompliance?

DR: Lifestyle changes [are] too painful. They like the salty food, in denial about the seriousness of the disease in their mind. The change is too difficult.

I: Does the fear of stroke, cancer seem to be effective motivators?

DR: What I see when I diagnose cancer or MI [heart attack], those patients quit, I say why didn't you do this 10 years ago when we talked about it? But, some will say my family member died of this so I will do something different.

I: What are some of the reasons people give you as to why they can't stop smoking, lose weight?

DR: Stop smoking: too much stress, "doctor it is hard to quit, it is just a habit," they have been smoking for a long time. If they tell me it is

expensive I tell them they can save money if they quit. Stress, hard to do, sometimes the medicine, if they try it, Chantix, has side effects, dreams, so they stop it. [They] always come up with some excuse.

I: How about weight loss?

DR: Weight loss: “Oh doctor, I am trying, but you know it’s hard to do it, I don’t have time to exercise.” So you have to keep on insisting, give them the guidelines, give them brochures, go to conferences that give me information on how to help people. Some people do very well, they do Weight Watchers, Jenny Craig. Sometimes I learn from them, they learn from me.

Physician Responsibility for Patient Compliance. The physicians were asked whether they thought it was the patient’s responsibility, the physician’s responsibility, or both, to assist patients with hypertension guidelines compliance. While the physicians generally said both were responsible, they did see themselves as acutely responsible for the success or failure of the patient.

I: What do you believe is your responsibility, if any, to assist patients with hypertension compliance?

DR: Well, it is 50/50. They have to make an effort and I will try my best to get them to the goal; goal weight, stop smoking, give them

medications, give them more medications, a lot [of] people need two or three medications sometimes.

I: So your role is to give them medication?

DR: And advice and educate them, help them relieve stress.

I: How do you help them relieve stress?

DR: I tell them it is a good idea to exercise, that is the big thing. Some Yoga breathing, some meditation, take five minutes away in a corner do deep breathing, because if you don't control blood pressure it will affect your heart, your kidney, eyes, everything; that's what I tell them.

I: What do you believe is your responsibility, if any, to assist patients with hypertension compliance?

DR: I think it is both, definitely both. I definitely play a role and I feel definitely responsible for the success and for the failure. Does this mean another physician can exceed where I failed? Possibly.

I: What do you see as your role in this compliance?

DR: I am making them understand the severity and why it is so important to get their blood pressure under control.

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- I: What is your responsibility, if any, to assist your patient with hypertension compliance and how important is the doctor/patient relationship for compliance?
- DR: I think it is very important because you are the one making the diagnosis and the patient needs to understand what that diagnosis is and what it means and stress the lifestyle modifications and sometimes this diagnosis is scary to them. They had a family member with high blood pressure or had a stroke with high blood pressure, so sometimes I have to talk them down because they are getting concerned.
- I: So you see yourself as the educator, someone to give them a diagnosis, the one to explain to them about that diagnosis, give them some tips.
- DR: Yes that's right, once they come and leave the office I feel I have given them what they need to do so it becomes their homework. I don't have down time to call them. I rely on the patients to do what I have told them to do. For myself, if I am motivated to make those changes that people tell me, then I will do it. If I am not that motivated I won't make those changes, so I am testing the patient's motivation to change their own health. Sometimes I am extremely

surprised that some people come back and say I joined Weight Watchers, joined the gym, stopped smoking with a friend. Sometimes I see myself as a cheerleader for them, upbeat and positive.

I: What is your responsibility if any to assist your patient with hypertension compliance?

DR: I am responsible to make sure they are coming into the office for the follow-up visits, because that is how I am able to first be sure they are under control and in compliance.

I: Would you say your responsibility is to educate them?

DR: Education is a process, a continual process about healthy lifestyle, because every time I see them I ask about exercise, diet. I ask them every single time, how much caffeine, how much alcohol.

I had a patient the other day and he is controlling his blood pressure, lipids under control, but he stills smokes. I tell him how can you still smoke? I tell him I will be successful when I can help you stop smoking!

I: So you see yourself as a physician to assist patients in lifestyle compliance?

DR: Yes, I see that as my role and I have taken a couple of conferences on emotions and I try to keep up-to-date on how to help patients. Then I share that with my patients.

I: What is your responsibility if any to assist your patient with hypertension compliance and how important is the doctor patient/relationship for compliance?

DR: Yeah, I feel some personal responsibility to a degree. I have to lay it out what things they need to do but I would not take them by the hand and lead them every step of the way. I have a resistance to that. We are all adults.

I: What is your responsibility if any to assist your patient with hypertension compliance?

DR: I think you do everything you possibly can do. Do I go to the house and put pill in mouth? No! Or watch what they eat? No! But we do consults and referrals for cardiologist, dieticians, bring them back frequently. That is a reasonable thing to do. Sometimes I bring family members in and say this is what I have to do. Continue to have an open dialogue.

Community Involvement to Assist with Compliance. Eight physicians

welcomed industry food standards and public service announcements to educate patients about lifestyle changes supporting hypertension guidelines compliance. Two believed some public efforts had failed to change behavior. All physicians felt the patient had to assume responsibility to change lifestyle habits, with or without community assistance. However, one physician felt there were too many entities involved, which confused rather than assisted the patient toward compliance.

DR: You have TV people involved, you have Walgreens and other pharmacies involved, you have every magazine, trying to convince the patient they know what they are saying, telling [the] patient what to do, and you have the insurance company that sticks their nose into it. I believe there is a general sense of false belief that patients are given the sense that medicine is really easy, all I have to do is XYZ. My magazine tells me this; all I have to do is this and this and this. But I tell them it is not that easy. If I need a lawyer I go to a lawyer. I don't try to go online. I think this is the problem: too many hands in the pot for too many reasons.

Changes in the food industry were the biggest area of agreement among the physicians regarding community assistance, for example, honestly disclosing ingredient information was thought to be the most responsible option. Changes to the education system was another community effort the physicians believed to be important to long term compliance.

I: What about the community or the food industry? Is it hard to find food low in salt and healthy?

DR: Oh yes, yes. I think the measures that have started to happen, where restaurants have to post the content of the food is good; the food industry needs to take some responsibility for the calorie, salt laden foods. But, it ultimately comes down to individual choice.

I: What about starting at the education level, starting with younger children, educating them?

DR: That is a very good place to start, can't teach them to love fatty, salty food as a kid and not expect them to like it as an adult. If your child is not eating vegetables they won't eat them later either.

I: How should we as a community look at assisting with hypertension compliance education: PSAs, food industry?

DR: Well I think that goes along with any of the chronic diseases, I don't know how you do that. I know that it is being done but usually with a pharmaceuticals company food industry "I drink Diet Coke and the salt I take in is ridiculous, but I know that. Some people don't even know that getting people to eat less processed food is a good thing. Food like that, it is expensive and it doesn't

last long. The other thing is exercise; if we get people in this country moving, and understand what that means, not a marathon, it will help immensely. Some people can't go out and walk; some will die if they go out for a walk. More community effort to promote that kind of thing.

I: So we need a community that can help assist us with compliance for wellness and health, maybe even work with the educational system, with children?

DR: Yes, absolutely, starting with children: movement, exercise, food, smoking, etc. Yes, you have to do all that. If you get it at school, good, but if they don't get it at home and the community effort, everyone needs to understand that you have to take care of yourself.

I: How should we as a community look at assisting with hypertension compliance education: PSAs, food industry?

DR: High blood pressure is swept under the rug of late. Used to say silent killer, kidney disease too remote I don't even go there, heart attack and stroke scare people. People not focused enough on it.

I: How should we as a community look at assisting with hypertension compliance education: PSAs, food industry?

DR: I read that New York is restricting salt; I think others need to do that. I say go back to same restaurant ask them to make a healthy salad. Food industry needs to be more responsible. McDonalds does not need to put so much salt.

I: So you really do believe some regulation needs to happen?

DR: Yes they could be clever enough to make food that is good for us.

A synthesized discussion of physician and patient barriers to hypertension guidelines compliance will be presented in Chapter five, along with a new model of compliance.

Patient Interviews

Patient interviews were conducted to answer the following research question: Why is compliance to hypertension guidelines by the patient and physician so low, and how can we increase compliance to reduce morbidity and mortality caused by hypertension? The four broad categories of awareness, patient compliance, the physician/patient relationship, and methods were found to include the themes shown in Table 3. Each of these themes will be discussed separately in the following pages.

Table 3

Patient Themes in Four Categories

Patient Methods	Physician/Patient Relationships	Awareness	Patient Compliance
<ul style="list-style-type: none"> • Knowledge of hypertension: <ul style="list-style-type: none"> ○ Dietary ○ Exercise ○ Medication ○ Expected goals • Professional support 	<ul style="list-style-type: none"> • Role of physician/patient relationship • Length of time with doctor • Ideal office of the future 	<ul style="list-style-type: none"> • Teaching/learning model • Health belief model • Self-efficacy model • Information needs/health literacy 	<ul style="list-style-type: none"> • Patient non-compliance reasons • Physician/patient responsibility for compliance • Health insurance role in compliance • Community role in compliance

Patient Methods

Knowledge Of Hypertension. All seven patient participants knew that high blood pressure could lead to heart attack and stroke, however only three knew hypertension could impact the kidneys or other organ systems. All seven patients had deficient knowledge regarding lifestyle impact on hypertension. All seven patients knew that blood pressure medication was the number one critical factor in controlling blood pressure. Patients knew they needed to lose weight and exercise to reduce their blood pressure, but they had little understanding of the actual correlation of weight and exercise to hypertension compliance. Four patients reported no explanation from their doctor as to

what hypertension was or the impact of hypertension on their body. All patients felt confused about how to evaluate online information and how to apply that information to their own situations.

I: Do you feel the doctor gives you enough knowledge, information to know the impact hypertension can have on the quality of your life? Does he explain what hypertension can do to your body and the quality of your life?

P: Yes and no: yes from my research, but *not* from the doctor. I am sure I have a lot of holes in my information. One of the challenges for patients: so much available online and so little available from [the] doctor's office, how do I take that information, know what is accurate and apply/reflect that to my life?

I: Did your doctor explain to you why you have hypertension; what causes it?

P: Yes.

I: What did she say?

P: I can't remember but I know it was right because I saw a chart on the wall that talked about hypertension. I know it is something about blood pressure to and from the heart.

I: Did your doctor explain to you what causes hypertension and what it does to your body?

P: Yes.

I: So what did she say?

P: She told me that it kind of tears up your veins; she described it great to me, not too complicated. The blood runs through and causes scrapes in your veins and if you have bad cholesterol too the blood can get stuck and cause a clot.

I: Did she give you books or material to understand, read?

P: No.

I: Did she talk to you about how it can impact your kidneys over time?

P: No.

I: Did she talk about the organ damage over time?

P: No.

I: Did your doctor explain to you what causes hypertension?

P: I was always borderline and my doctor would always say we are going to have to do something about this but never did, so I changed doctors! Now I go to my wife's doctor and I think women doctors are more in tune to the body than male doctors. My male doctor would say: ah you are just getting old. The woman doctor would say: let's get to the bottom of this and she put me on medication. I know all pills have side effects, but at the same time I don't want to wake up and have kidneys not functioning.

I: Did your doctor tell you about the organ damage of hypertension?

P: Well, I can't remember, but I have friends and family members that have damage, and I was a pharmaceutical rep, so I know.

Dietary. Mitka (2009) suggested that the physician might be too busy to invest in patient diet education, or perhaps lacked understanding of how to promote lifestyle issues to patients in a clinical practice. All patient examples in this study supported these findings as well. Three patients had no instruction at all from their physician about diet, such as the DASH diet to restrict salt, or fat-reduced diets.

I: Has your doctor told you how much salt you should have in your diet?

P: No, not that I recall. He has a nurse. She will say: just throw out the salt shaker. Couple other things she says: you are not going to

have this, you are not going to have that. I am nowhere near as bad as before but. . .

Exercise. In addition to controlling or reducing weight, exercise has been associated with positive chemical changes that neutralized the negative impact of hypertension on organs (Fenty-Stewart et al., 2009). Aerobic exercise training reduced the risk of CVD by reducing the grade of oxidative stress. Oxidative stress may directly or indirectly contribute to the progression of end-organ injury by promoting hypertension, atherosclerosis, or by inducing glomerular damage and renal ischemia (Fenty-Stewart et al., 2009). Exercise was an intervention with which patients were least compliant; one respondent had an exercise program and one was in cardiac rehab as his only exercise. All seven patients were given little or no instruction from their physicians about why exercise was important, or the type of exercise to do. Two patients involved in exercise programs noted a marked change in blood pressure. One of those patients was involved in cardiac rehabilitation after a stent placement and reported record low blood pressures and improved blood glucose levels since beginning the program. One patient said he still had high blood pressure even though he exercised when he was younger; he didn't think exercise was a solution for him.

I: Did you notice a difference in your blood pressure, does it decrease when you go to cardiac rehab?

P: Yes it is better. Yes it is. I have had 110/60. That is a miracle for me. Yes the exercise is working. I am trying to step it up every

time I go. The next day I feel better and yes the blood pressures are less on the high side.

I: How does exercise impact your blood pressure?

P: Yes, I know. Trust me I know what is right; I know what you are saying: high blood pressure leads to other things, it is not healthy. But I was healthy and I still had high blood pressure. For me exercise is not the cure for my hypertension. I had it for so long and I was active and still had it.

I: Does exercise impact blood pressure?

P: Yes I did a stress test and the administrator said you should exercise everyday; your blood pressure goes down with exercise.

I: So are you on an exercise program daily.

P: Yes, three to five times a week, I walk, elliptical, Zumba—I dance—and some weight training.

I: Has your doctor ever explained to you what type of exercise program to follow to assist in controlling hypertension?

P: No.

Medication. The literature suggested that medication was the single most important intervention to control hypertension and one of the most difficult compliance factors. The seven patient participants interviewed for this study all understood the importance of taking their blood pressure medication and admitted to only occasional failure to daily medication regimes. Three patients felt a physical symptom if they missed their blood pressure medication and used that symptom as a reason to avoid missing the dose rather than direct awareness to the impact on their blood pressure. One young female patient admitted she was non-compliant until the report of a very high blood pressure reading during an emergency clinic visit convinced her to take medications and start losing weight. Only one patient experienced a side effect from her blood pressure medication and that was a recent occurrence. Only one patient stated financial reasons—no health insurance—as the reason that the selection of blood pressure medications was an issue.

I: You take two medications?

P: Yes Ziac and Lisinopril 10mg.

I: Do you take the medications every day?

P: Every day.

I: Do you ever miss?

- P: No I never miss because I am afraid to miss. I will get the headache if I miss. One day last week I forgot to take it in the morning and took it later and I was sluggish all day.
- I: Do you take your medication every day?
- P: Yes.
- I: You don't miss?
- P: No, only once in awhile.
- I: Have you had any side effects from the medicine?
- P: No, oh excuse me, I mean yes. I am going to the doctor tomorrow because I get a very swollen lip. I have been into the doctor when it happens but she thought it may be a spider bite, but it happened to a friend and she said it was due to her blood pressure medicine because she said anything that ends in *pril* can cause that side effect in African Americans. So I am going tomorrow to get my blood pressure medicine changed.
- I: Very interesting. Does your doctor refer to hypertension or medications in light of your ethnicity?
- P: She says "with your history."

I: But never equates it to ethnicity?

P: No, she says only based on your history.

I: What about your medication; is that something you have difficulty remembering to take?

P: Yeah, I do. For a long time I didn't care about it much, but now I am very diligent, maybe miss five days out of the month.

I: When you said you weren't very concerned or diligent, what changed your mind?

P: The one time I went to the doctor I went to an emergency clinic for a visit and they said wow, it was really really high, you better see your doctor, and that scared me, so I started doing better, taking my medicine. I didn't really notice that I felt any different, but now I notice that I get a lot of headaches and when that happens I think: did I take my blood pressure medicine?

P: I have blood pressure medicine and a water pill. More often I take [the] blood pressure pill, not [the] water pill.

P: I sometimes take a couple days off [when] I can't stand to look at them anymore. If I am off my blood pressure medicine a couple

days [I] feel a heart palpitation so I get right back on it again. More often [I] take the blood pressure medicine, not the water pill.

I: Has the doctor talked to you about three medications to control your blood pressure?

P: Yes, he wants to see how these go because I don't have insurance. I need to be on generic medications where I can save money; I refuse to pay money I don't have.

Expected goals. Most patients could not recall the physician establishing specific goals for blood pressure numbers or lifestyle changes except that both blood pressure and weight should be lower than current levels. Only one patient received a clear message from a physician as to what the optimal blood pressure should be.

I: What is your optimal blood pressure? Does the doctor ever tell you what the optimal blood pressure is?

P: Umm, no not really, but he always says better, better than what you walked in with.

I: What does the doctor tell you your optimal blood pressure should be?

P: Good question, I don't really know. I think under 120 and under 80 on the bottom.

I: What does the doctor tell you your optimal blood pressure should be?

P: 120/80.

I: Is your doctor happy with your current blood pressure?

P: No, she would like to see it better.

I: What does the doctor tell you your optimal blood pressure should be?

P: I think as long as my bottom number is in the 80s and top level under 140, that is my goal; I would be happy consistently.

I: Did your doctor tell you he/she is happy?

P: No.

I: Did he/she tell you where they want your blood pressure to be?

I: No.

I: Because you are a Type I diabetic, does your doctor tell you what your blood pressure should be?

P: Well that depends on which doctor you are talking about. I have an internist, cardiologist, and endocrinologist.

I: So which one controls your blood pressure?

P: It was originally the cardiologist but because of my knee I was seeing the internist. He became very concerned about my blood pressure and he started to make changes. After awhile I felt that the cardiologist should be the one doing this, not him. I called the cardiologist and said I wanted the cardiologist to take over my blood pressure, not the other doctor.

I: So what does the endocrinologist say about your blood pressure?

P: Well I go through a group and they are all in the same group so I assume they read my files “mistake” [they don’t read my files] he is concerned about my hgbA-1c, my blood sugars. I am an uncontrolled diabetic.

I: So is he concerned about that? What is your hgbA-1c?

P: Up there over nine, so he leaves the blood pressure to someone else. He is trying to get my diet controlled and my exercise up. He is a diabetic too. I value his opinion because he is actually living it.

Professional Support For Compliance. Most of the patients did not believe the

professional support they received from the physician's office or from their physician was adequate to assist with compliance. Some thought increased follow-up and improved functions of office staff would be helpful support. Only one patient felt it would be an intrusion of her privacy to have the doctor or the office follow-up with her about lifestyle changes, however, she might welcome intervention if conducted in an appropriate manner. The one patient with no health insurance felt the least supported and did not believe the office or doctor knew how to help a person in her situation. Resources for people with no health insurance existed in the community, but I noted that physician offices, in my experience, did not know how to access these resources. In this situation the patient did not qualify for public aid. Offices that work with public aid patients know of the available resources for them, but not for the working uninsured patient. The same patient gave the example of professional support using e-mail or other forms of technology to reduce her costs and improve support. The following exchanges were related to professional support:

- I: What if your doctor's office made phone calls to you to monitor your diet, exercise, medication, smoking, etc? How would you feel about that approach?
- P: No, I wouldn't be offended by that. But my doctor, she wouldn't call me. She is too busy. Follow-up is good, it helps you stay on track. When I had my surgery (bariatric surgery), they followed up often and that was helpful.

I: How would you respond to your office telling you: I am going to call you for follow-up. How would you feel about that?

P: I would probably say all right fine. There are too many balls in the air right now, it seems that way. Let's get the cardiac rehab over and then let's get on to the next one.

I: Would you see this as a violation of your rights, privacy?

P: No, no, I think that is their job, try to figure out what is going on and offer suggestions/make recommendations. I am sort of on the non-compliant side with those types of things; not medications, I take those. If they are more forceful or pesky I think that would help.

P: When you go into the office and the office people are crazy, it's not their fault, but it sets the mood. Doctor tells you to come in anytime to check blood pressure, but when you come in they say they can't fit you in.

I: What if they offered you a good blood pressure [machine] that you could use at home?

P: Absolutely, that would be great. I have one that doesn't work well. I need a large cuff and I told them that but they didn't offer me any advice, tell me where I can get a better one. They didn't say I have this information, you should try this, or even give me a discount. I would be happy to pay for the right one. They haven't given me any online resources they are aware of. I would even make an online visit with the office instead of having to come in all the time.

I: How would you feel if your doctor told you to lose weight, stop smoking, or exercise more?

P: I would think it is a good thing they would be checking in every week so I would be more motivated to lose weight.

I: What if your doctor's office made phone calls to you to monitor your diet, exercise, medication, smoking, etc. How would you feel about that approach?

P: Not a problem.

I: What if your doctor's office made phone calls to you to monitor your diet, exercise, medication, etc. How would you feel about that approach?

P: I would feel they are intruding in my personal life. I know some people like a lot of contact but I don't like that, I like to run my own life my way. I happen to be very stubborn. I like suggestions but I make the decisions.

Physician/Patient Relationships

Role of Physician/Patient Relationship. All seven patients believed the physician/patient relationship was significant to improve compliance. Patients believed they alone were responsible for lifestyle changes and other measures to control their hypertension and wanted to partner with their physician. Most believed the relationship with their physician was inadequate to nonexistent. The amount of time the physician spent with the patient was not an issue; all seven respondents believed they had enough time or could spend more time if they needed it.

I: What could be important to assist with physician relationship, compliance?

P: I shouldn't say this but surprisingly the nurses don't do much, but some of them, half of them don't do anything. One nurse took my blood pressure and she didn't tell me what it was so I asked, and she said 115 [over something]. I said: you must have a hole in your

hose, there is no way, that can't be right, do it over. She said it [was] not necessary, so I watch out for her. My doctor is supposed to tell me what to do, and I am supposed to do it; she is supposed to harp on me.

I: How does the relationship with your physician impact your desire to lose weight, take your medications, etc.?

P: Here is the problem with physicians: they (patients) treat them like God. They go to the doctor and they come out with three scripts and I say you didn't ask them about it? They say no, they just accept it. I tell them they need to ask questions, they are not God. Me and my doctor have a dialogue. I am going to hear everything you have to say and then I am going to ask questions. People need to start listening. They need a dialogue with their physician, a relationship. You need to know everything you need to know. It is your money. If you had to pay \$500 you would ask more questions. If you have questions later, you call them back.

I: How does the relationship with your physician impact your desire to lose weight, take your medications, etc?

P: I think, umm, a relationship with the physician that I felt was kind of personal. I felt like the physician was relatable and understood the struggles of eating better, exercising, losing weight, and had some solutions that required her intervention. If I felt like that doctor was really concerned that I follow what she says, that I get motivated to do it, and that she was going to be monitoring me. If I would get a phone call and the doctor would say: hey how are you doing, you need to come in, I haven't seen you in two months, what are you doing? That would make me feel like I had a real relationship and I probably would keep motivated. What I know now is if I don't schedule an appointment for whenever she says, it is up to me. If I didn't have to take medication I wouldn't schedule an appointment for years out because when I go I can tell that, umm, you haven't read the chart and you say okay. Yeah, yeah you have these issues, okay let me do my exam and this is what I recommend and come back in three months. Well if I don't need my medications I am not coming back in three months.

I: You mentioned you had some doctors in the past, not so kind in approaching you; what do you think is the best approach for a doctor to assist your motivation?

- P: I think they have to be kind [and] helpful, not overbearing. That will just turn people off. Being friendly. I like doctors that ask questions: how are you feeling, what else do we need to talk about?
-
- I: How does the relationship with your physician impact your desire to lose weight, take your medications, etc?
- P: I think it's a gentle push. It is helpful, I think it is helpful.
- I: So personal relationship is important?
- P: Yes, yes for all of them [doctors].
- I: Does it help you make a difference in your desire to follow directions?
- P: Well, it is a teamwork thing; they are guessing that this might work, they don't know what my body is going to do with that stuff, they are trying to get me involved so I call them to let them know how it is working, since I find out they don't read my files. I was in a situation where I had to stop something, a drug, because it almost killed me. It had something in it that was in my file, I shouldn't take that. They said: how far back is it in your file? I

said: one year. They never saw it. My wife says you can't expect them. . . and I said: It's my job? What if I don't remember?

I: How does the relationship with your physician impact your desire to lose weight, take your medications, etc?

P: Someone that is not judgmental, someone that is going to work with you and listen to things you bring into the office; someone to really listen to you. Not someone who looks at you and there it goes, they are on their program not yours.

Length of Time with Doctor. None of the patient participants believed lack of time during a visit was a barrier. Their more frequent comment had to do with whether information was given or questions asked during a visit.

I: Do you have enough time with your doctor?

P: Yes the majority of the time, yes. Sometimes it is rushed if I don't bring up a lot of questions. With this doctor it has not been rushed.

I: So time is not the issue with not being listened to?

P: No, that is not it; I could extend the visit if I wanted to.

I: Do you feel your doctor has enough time for you?

P: [she is] never rushed.

I: So time is not an issue?

P: No, she always takes the time.

I: Does the office staff help you with compliance, take time with you?

P: No. I think the nurses are a bit more snooty. If they call me and I call back, they act like they don't know me. They don't act like they care like the doctor does.

I: So you don't see a team effort in the office?

P: Well they put me on the scale and put me in the exam room, but it is the doctor that comes in and asks the probing questions, and tries to get some info out of me.

I: Do you have enough time with your doctor at a visit?

P: That is very difficult; I have to come in knowing someone is really listening to me, not sort of listening, not even hearing. I am always uncomfortable with them pushing medicine, sounds like what the salesman said versus telling you what it is. It is like pulling teeth to get them to tell you about the side effects [of] meds, for example,

he just recently changed my water pill and didn't tell me about the water pills; he didn't tell me it could knock me out. I took it and couldn't do a thing all day. I have gone back to doctors and tell them I got this rash and they want to argue with me that the pill doesn't do that and it is right there on the pharmacy stuff. So I have been through so much with doctors. I don't trust them anymore, so I don't even bring things up.

I: So you would like someone to collaborate with you?

P: Yes.

I: Someone to give you all the options and allows you to make the decision?

P: Yes, right. If I bring something to them this is what was shown for women, I want him to listen, and everything [they tell me] is based on men [male research].

I: So collaboration is one; so if collaboration is increased could you increase your trust?

P: Yes.

I: So collaboration and trust are important pairs to you?

P: Definitely, and the need to allow me to make the decisions or feel like you are making the decisions.

Ideal Office of the Future. Patient participants were asked to describe the ideal office visit. All seven said they would change the office visit as it was now. All described the ideal office as one that was patient-centered, easily accessible, affordable, and innovative. Patients wanted a doctor who looked at the whole person, and one that presented health information with options to the patient for compliance.

P: The [ideal] office should be like a health club with people like me that need to lose weight.

P: [The ideal office should have] group visits with other patients with hypertension.

P: [The ideal office should] be a partner with me.

P: [The ideal office] should be my coach.

P: [The ideal office should] Help me sort out information.

P: [In an ideal office] don't always be concerned about the doctor's agenda; hear mine as well.

P: [The ideal office should offer] Group visits for patients that are socially motivated and competitive.

P: [The ideal office should not] treat doctors like God; they don't ask questions of the doctor, time to start asking questions and have a dialogue with your doctor. Food preparation classes so we can learn to eat healthy, great tasting food.

P: Doctor needs to know more, doesn't know anything about women's health.

P: [The doctor's office is] Not trained in dietary issues; doesn't know anything about sea salt and benefits over regular salt.

I: What would the ideal office of the future look like?

P: Well it would have a three-pronged approach: 1. medication, 2. education, 3. some kind of exercise and food preparation. Actually four things: food management. That is hard for a small doctor's office. She has small rooms. They cut reimbursement to the doctor. But if you were able to put all this into the health system it would

be great. When I had my surgery I went to meetings, appointments afterwards and saw people like me before, during, and after surgery, and that was motivation right there.

I: Maybe group appointments?

P: Yeah and give them some kind of incentive for being there. A pedometer or something, maybe money for the number of steps you do and then have some food there to show people how good things can taste and they will say I can make this.

I: If you had to define/design the ideal doctor's visit to instruct a person like yourself to improve compliance to hypertension guidelines, what would it look like?

P: That is a good question. I think that the doctor's office is going to have to intervene at a younger age. When the kids were little and I brought them into the doctor it was age, weight, and height, immunizations-focused. There was never mention or discussion as to exercise, activity level, what they ate, nothing. So it was never put into their thought process on what they should or should not eat or do; they thought they could eat McDonalds every day and no doctor ever mentioned they shouldn't. So I think the doctor's office has to start at a younger age talking to the kid about their

management of their health for later chronic disease, even if a kid didn't see the correlation between now and what could happen at 84 because they can't see now and 5 years, at least it would get them thinking in the right direction.

As for people like me that are already in that situation, I don't know that I have any answers, other than, I always feel like a number in the doctor's office. . . a benefit to their income stream not as a person that needs real assistance, and I have always felt that no doctors ever looks at the entire picture. It is very compartmentalized. If I want to talk about my sex life I go to the gynecologist, if I want to talk about stress I go to the mental health doctor. If I want to deal with my feet problems I have to see a podiatrist. I can't even talk to my doctor about my feet; when I go into the doctor they ask what is your pain level and I say a six and they say what's the matter with you, and I say my foot hurts. Okay and that's the end it is not even mentioned, I am not seeing that doctor for that.

I said to the doctor once do you think my blood pressure is so high because of this pain? Could be, she said, but take this medication because that is not her focus. Somebody has got to see the entire picture. I was referred to a chiropractor because someone told me

they look at the entire picture, but I didn't feel they did. He was looking at the bone structure, so maybe back to the family doctor that sees the entire picture. That is what I would like to talk to: one person who would say oh, you are having a problem with. . .um. . .you are having a problem with your foot, maybe that is what is affecting this, let's put this all together, this is the whole package and then you can be helped in that way. That is what I would like to see in a doctor.

I: If you had to define/design the ideal doctor's visit to instruct person like yourself to improve compliance and change your lifestyle, what would it look like?

P: I would think she would need to put me on something very specific, specific instructions; it can't be general, really specific calories, or salt, start by this.... She hasn't quite done that specifically with me.

Awareness

Teaching, Learning. The questions for this theme focused on how patients learned and effective ways to instruct the patient in lifestyle changes to reduce hypertension. One person preferred to go online and read about hypertension compliance, diet options, and exercise plans because she liked to read things on her own. The

remaining six expressed a preference for visual materials. One respondent commented on interactive materials to show what hypertension was and what it did to the human body. Two respondents thought examples of food portions and cooking classes to prepare healthy foods would be helpful. Six respondents thought group sessions would be a good idea to help with compliance, as would cardiac rehab, where others were also motivated to make lifestyle changes. One cited exercise programs for overweight people as a positive offering. All respondents cited the need for self-education, however some said information was available everywhere except the doctor's office.

I: Does he instruct you on how to look for salt content in your food?

P: There was a book he recommended he thought was good. I looked into it; it was kind of like the South Beach Diet. But, I was like, you know, I am just a regular guy [laughing], I am not going to look into all that.

P: I want more information. I want to try to do better, too much at once, [I need] little steps, and little plans.

I: Did she give you books or material to understand, read?

P: NO. I think she has given me the opportunity to get the information, but maybe I haven't probed enough or taken advantage of it.

I: Do you think you would know how to outline a plan to get to your weight and blood pressure goal?

P: NO, not at all. I think they have put out a lot of information, but unless I have something in my hand like *High Blood Pressure for Dummies*, I am open more now to information because I know more now.

I: Do you like pictures, versus reading words?

P: Reading.

I: So the printed word does not scare you away?

P: No, as long as they don't have gigantic words. I like graphs. Pictures are nice if they are trying to describe something or seeing something, but I like the detail as well.

P: Examples are always good.

I: What kind?

P: Pictures, pictures of exercises. A list of food that is low in salt.

I: If you get a hand out with words on a page does that attract you to read?

P: No, I would rather like to see pictures not words.

I: What if the doctor had some sort of interactive material like the iPad, would that give you a better feel as to what is going on with your body?

P: Yes.

Health Belief Model. Rosenstock (1974) visualized the health belief model as an individual who lived in a life space that contained regions of positive value, regions of negative value, and regions of neutral value. The individual's compliance to guidelines was conceived as a process of being pulled by the positive forces and repelled by the negative ones (Rosenstock, 1974). One patient participant exemplified this concept as he described his battle with exercise. He enjoyed it at one point in his life because it was part of his social activity with friends. At that time, the negative of exercise was overcome by a positive social experience. When he moved away from those friends, the negative of exercise pulled him away from engaging because there were no positive forces to counteract the negative ones.

Through the lens of the health belief model, hypertension guidelines compliance behavior only took place if an individual believed: (a) he/she was susceptible to the effects of uncontrolled hypertension, (b) the outcomes of uncontrolled hypertension would have a moderate to severe impact on his/her life, (c) engaging in a particular action, such as taking medication or reducing BMI, would be beneficial to his/her life, and (d) it would not require him/her to overcome important barriers such as cost,

convenience, pain, or embarrassment (Rosenstock, 1974). An individual's belief about the effectiveness of the various hypertension guidelines, and *not* the objective facts about the effectiveness of the guidelines, determined what course of action an individual with hypertension took (Rosenstock). The patient interviews demonstrated conflicting beliefs about health and lifestyle change effectiveness.

P: I go to my doctor for my physical in January. Because I have my physical I go for 15 days before and starve myself and exercise for 15 days riding my bike, before I go to the doctor's visit. After the visit. . . I stop.

I: Do you feel better in those 15 days?

P: I feel great, I feel great.

I: So that is not enough motivation to keep going forever?

P: You know, it is really weird. I have really lost interest to do it, to exercise too and I don't know what it is. I am waiting for something bad to happen before something good can start, doesn't that sound crazy? I don't want a stroke or sugar diabetes; it's like I am waiting for a disaster to start doing something. I don't know if that is bad to think that way.

I: You made an interesting comment: you once weighed a lot more. Was your blood pressure higher at that time?

P: You know, I can't tell you what my blood pressure was. I didn't even think about my blood pressure. I had more problems with sleep apnea. I could fall asleep at a traffic light so that concerned me more. If I had something to eat two hours later I could be comatose. If you remember Reggie Jackson, he died from sleep apnea and my wife would tell me I not only snore I stopped breathing! So that scared me! I went to my doctor and told her I could not stay awake, so they discovered I had sleep apnea and I used the c-pap and that really helped. I woke up refreshed. But who wanted to sleep with that on at night? So it was such a problem I decided I had to do something.

I: So sleep apnea is what made you lose weight?

P: Yes, I was more concerned about dying from sleep apnea than worrying about hypertension. That was not even on my mind at that time. I am sure I had hypertension but that was not a concern to me. I got to the point and I lost 70 lbs. and I felt so much better it helped my sleep apnea and my blood pressure. I went to a company meeting and [they] didn't even recognize me, but I

hadn't even realized I had lost that much weight. You always look at yourself the way you were.

P: Even though I knew what to do, sometimes you still don't do it. Isn't that a funny thing?

I: Why do you think that is?

P: I think you have too many things on your mind, too many things going on to worry about this right now, and you don't deal with it until it catches up with you. When I was falling asleep at stoplights, then I knew I had to do something about it.

I: Do you think over generations we could change? Like eating less salt, we could change our diet through education in school and churches, and get used to foods less salty or fatty?

P: I think there would have to be something astronomical that occurred, because kids like good flavor too and they are picky on flavor more than adults too. Something like we develop an allergy to salt and drop dead at 25. That would make us stop.

I: So the thought of not having a stroke 5-15 years from now is not motivation enough to decrease salt, fat, and lose weight?

P: No and why is that? I think we have the ability to compartmentalize what is going to happen to you and what doesn't happen to you. We know lots of people that are fat and eat what they want and they are okay, they lived to 85, so we say I feel okay, I take medicine so I am fine. I think we say I know we should. I do a lot of times, yet we let it go.

I: If you knew beyond any doubt that controlling your blood pressure to 140/90 or less could improve the quality and length of your life, would you change your lifestyle habits?

P: Honestly, I don't think so, still too far in the future. I would like to be able to say yes that would happen because I am a thoughtful and intelligent person. But I cannot say I would absolutely do that. I wouldn't categorize myself as a risk taker, but in that scenario I can't see myself doing it. I can't see that far in the future. I think part of me thinks I could get hit by a bus tomorrow; this is the end of your life and I didn't enjoy myself in this time period because you were so focused on having a good life in the future you didn't enjoy today. By enjoying I mean enjoyment of your food, not exercising. Okay I am saying that but I am acting differently, I am having a mental shift, I am watching what I eat, I am losing weight, I am exercising, I am making the changes, but I don't like

the changes. I don't like having to do those things. I much prefer to sit on the couch, look at television, and eat my chips. I hate every change I have had to make. I don't like having to do those things. I am choosing not to do those things because I don't want to have a poor lifestyle later, so in effect I am saying I don't want to do those things and none of that stuff is going to stop me from not doing those things. I don't think I said that correctly. I am doing those things, I don't want to do those things, I do see the correlation in the future and that is what is motivating me, but if you ask me specifically if that is why you do it, no, and I don't know why that makes sense. I am doing it; I don't want to do it [emphasis]. If somebody else says you need to do this because if you don't this thing will happen, that won't motivate me to do it. It's not from them, it's from me, and I think that is what the difference is.

I: Do you feel better with less weight and more exercise?

P: Feel better because less weight no; feeling better because of exercise to some degree because I am able to do more things, because if I want to jump in the car. Another real life example I have a lift gate car and there was something way in the front and I jumped in and got it and my girlfriend said hey you are able to do that, I said yeah and she said I am not. I probably wouldn't have

done that if I hadn't lost weight. I guess I don't feel it enough. I see myself the same as when I weighed 60 lbs. more.

P: If someone tries to push me into something I don't want to do it. I have to do it myself, I have to want to do it for me. Again, suggestions/advice are great, I tend to not react well, certain lifestyle changes. I want to do what I want to do than to take the extra effort. I want to be able to live the way I want to live. I want to increase activity but I have to get there.

I: If someone told you [you were going to have] a stroke tomorrow, that wouldn't change your lifestyle?

P: I would be tweaking it but not a full lifestyle change, no.

I: So you would take the risk or the chance, so you're a risk taker?

P: Maybe yes, maybe no. I would say yes.

I: Do you believe you have the personal ability to manage/control/improve your blood pressure?

P: I wouldn't say not completely, only because I take the water pills, reduce my salt, can't get my activity which I can't do right now, but sometimes I think I am battling something that won't move.

- I: What is that?
- P: I don't know. Sometimes something gets me upset and that shoots it up.
- I: Does the doctor talk to you about stress and how to manage it?
- P: I know that stress does do that. That is why I retired from my other job. It was high stress for a very long time. I was very sick. I have gotten most of the stress out of my life, kids are gone, but because of what I have gone through in past years, when I do get upset/ stressed, everything goes haywire very quickly. I have been trying to do yoga meditation but then something comes over me. I don't know if it is hormones or what, and I get all worked up over things and I can't get it down. I don't think that helps.
- I: Does your doctor tell you about stress classes or how to handle stress?
- P: No, not at all!
-
- I: Do you believe you have the personal ability to manage/control/ improve your blood pressure?

P: Yes. Yes, but just a matter of doing it! And getting into a routine.
Just a matter of doing it.

I: What keeps people from doing it?

P: What keeps me from doing it? I am just too tired to get up and do anything; just make myself get up and do it.

I: But you value yourself enough to exercise, you don't think that is an underlying issue? You don't say I am worth making this sacrifice, I am worth the extra money to buy food?

P: I have never thought about it that way so?

I: Do you think people give compliance much thought?

P: I don't think they do. I don't think unless something happens they don't think about it. . . an episode of something happens and [they] get a wakeup call.

I: Maybe if you took your blood pressure every day you would be more motivated you think?

P: It would probably drive me crazy, like I am one of those guys that if I don't know about it it's okay. If I do know it will bug me all

day and I will work myself up. I feel flushed right now just talking about it.

I: Does the doctor ever address with you the psychosocial issues of why you react the way you do and how you can control it?

P: No I don't think any of the physicians address this. I guess it is always the question: how long have you had it, high blood pressure, so it is hereditary. . . something you will have all my life; it will never go away.

I: Does he talk about stress reduction in your life and how to control it?

P: No. To be honest my job is not stressful; I am always happy-go-lucky. I am not that stressed out, I don't bottle anything up. He asks if I have my highs and lows. I think if I were depressed, I think I would start exercise because I know when I did it clears my mind.

I: Does your doctor do anything to assess your readiness to change?

P: No, not currently.

Self-efficacy Model. Self-efficacy is a person's belief that he or she has the ability to successfully take action on his/her personal behavior and/or social environment.

Improved self-efficacy increased the likelihood that the person would attempt to make a change in behavior in a positive direction (Johnson et al., 2006). Patient responses to interview questions demonstrated self-efficacy. All seven patient respondents believed it was their responsibility to control hypertension with the physician's assistance as educator and monitor of their blood pressure. All but two patients believed they could change behavior and impact their hypertension. Two patients indicated that since hypertension was in the family genetics, there was little they could do to control it.

I: Do you believe you have the personal ability to manage/control/improve your blood pressure?

P: No, other than through medication.

I: Do you think you have any power or control to keep that bad thing from happening?

P: Oh yeah, yeah, [passionate response], exercise and eat better; I do believe I can control this. I am not out of control; I can control this. [pause] I really feel like I did everything right to avoid high blood pressure but it was passed down to me, so I have to live with it now.

I: So, in a way you don't really feel like you have control over this hypertension?

P: Exactly. I feel like I don't have control, you know, because my mom has it and my relatives had it.

Information Needs/Health Literacy. The focus of this category was on what information patients needed but were lacking, both in terms of not understanding and not receiving. It also included what the patients understood about what they were told. One patient participant expressed confusion over the medical terminology used to describe medication instructions. Physicians were guilty of not saying or probing enough rather than saying too much. All the patients believed information was lacking. Sleep disorders, depression, and stress as they impacted hypertension were only mentioned superficially. None of the physicians or patient participants explored the degree of stress or depression, or options for sleep habits.

P: I think she has given me the opportunity to get the information, but maybe I haven't probed enough or taken advantage of it.

I: Do you think you would know how to outline a plan to get to your weight/blood pressure goal?

P: No, not at all.

P: If they tell me to take something twice a day, I think morning and noon, and my wife says no, 12 hours apart. Why didn't they tell me that? I think a plan: here is what you are going to do for the next

six months; here is where we want you to get to. . . do this and this.
If something happens, call me. This would be helpful I think.

I: You mentioned on the phone your wife is an advocate for you, so you depend on her to be your advocate, is that correct?

P: Yes, when we go to [the] doctor she takes notes, and we come back, I think they said this and I didn't understand it that way, so she will pull out the notes: but I thought it meant this. . .

I: Does the doctor ever give you a summary at the end of the visit?

P: I, umm, you know who was giving it to me. . . it was the Internist, we did this and that, I changed this and that; and that was very helpful. . . I don't get this from [the] cardiologist or endocrinologist, and now I ask them to write it down, to do it too. This is important. I can't remember and I get it mixed up.

I: Do your physicians have a patient portal to access your file?

P: They never told me that is available. What am I going to ask them?
How do I say that?

I: Has your doctor talked to you about depression and the psychological impact it can have to prevent you from getting to your goals?

P: No, zero.

I: She doesn't bring it up?

P: No.

I: Does she ask you about stress?

P: Yes.

I: How does she ask you?

P: How are you feeling; she may ask how your stress level is and I say great!

I: Does the doctor ever address with you the psychosocial issues of why you react the way you do and how you can control it so your blood pressure is not so high when you come in the office?

P: No, I don't think any of the physicians address this.

I: Does he talk about stress reduction in your life and how to control it?

P: No. To be honest, my job is not stressful. I am always happy-go-lucky, I am not that stressed out, I don't bottle anything up. He asks if I have my highs and lows. I think if I were depressed, I think I would start exercise because I know when I did it clears my mind.

I: Does the doctor talk about stress in relationship to your blood pressure?

P: Yes, but has she ever given me ways to reduce it? She just asks about it, she talks about reducing it, but doesn't give any ideas.

Patient Compliance

Patient Noncompliance Reasons. Patients stated that lack of time was the biggest reason for noncompliance. However, one patient said what I inferred most respondents believed: developing a plan tailored to the needs and style of the patient would facilitate their compliance to hypertension guidelines. In addition, most patients stated that compliance did not become a priority until or unless something happened. Respondents noted that exercise and diet plans needed to fit into their lifestyle and daily routine.

P: It has not clearly been defined as to what I am supposed to do. I see three doctors and they all give me different things to work on. I need a plan.

I: Do you think people give compliance much thought?

P: I don't think they do. I don't think, unless something happens, they don't think about it. If an episode of something happens, then you get a wake-up call.

P: Doctor, he is always giving me literature.

I: Do you read it?

P: It is always on the wall, five-six sentences. I read it but never look too deep into it. It involves going to an office once a week, but with two young kids I don't have time.

I: Does he offer to send you to a dietician?

P: No, but I went to a dietician in the past.

I: Did it help?

P: Well, when I have to write everything down I lose so much interest. I start and by lunch I forget, so you know?

I: So not too practical?

P: Yeah, yeah, I can do it if I had to; too lazy to do it.

I: What keeps you from making lifestyle changes in your diet?

P: . . . well, I work 50 hours a week so I am not in a good position to make fresh foods every day. I know that is a huge impact because we eat a ton of take-out or prepared foods and I know those are bad, a ton if salt, but you almost have to stay at home to cook for yourself all day. I mean I am just so busy, I don't spend time for myself. I work 10 hours a day, my two days off I am trying to manage a household, taking care of that. I get home from work 5:00-6:00 pm and okay I have to get up at 6:00 am, so I have to go to bed. Time is the issue, I am young still. . . so I feel I have time, I put things off to the future. Later I will take care of my diet, etc. I know I should do it now but I just haven't done it.

Physician/Patient Responsibility for Compliance. Patients were asked who was responsible for controlling their hypertension. All seven patient participants responded that the responsibility belonged to both themselves and their doctors, but was ultimately theirs. They all wanted more detailed planning to assist with compliance.

I: In your opinion whose responsibility is it to control your hypertension, you, your doctor, or both?

P: Both. She knows about medications.

I: So is that her only responsibility?

P: That and education.

I: What kind?

P: Well maybe a salt restricted diet, maybe a more detailed exercise program.

I: In your opinion whose responsibility is it to control your hypertension, you, your doctor or both?

P: Probably mine more than him [doctor].

I: Why?

P: He is my coach. He can tell me: let's try this, but unless I take it serious, I have to make lifestyle changes and if I don't do it [it's] kind of pointless, useless.

I: In your opinion whose responsibility is it to control your hypertension, you, your doctor or both?

P: Mine absolutely.

I: What role should the doctor play?

P: Medication management, education, information, guidance.

Health Insurance Role in Compliance. Patient participants supported insurance companies promoting hypertension guidelines compliance by making phone calls or offering incentives. Only one patient had an insurance company available for compliance assistance, however, she did not take advantage of the service. All patients believed insurance companies should expand payment to services such as wellness programs, coaches, Weight Watchers, or other nontraditional benefits to increase compliance. Decreased premiums would provide motivation to change their lifestyle. All seven patients preferred having someone from their physician's office—rather than the insurance company—make reminder or follow-up calls. One patient did not have insurance and had no opinion.

P: I have a really good insurance company. I have United Health Care and they have these options for me: coaching with [a] wellness person, dietician, but I haven't taken advantage of it.

I: Why is it that?

P: I think for me it is like a time thing. Like I mean I am just so busy. I don't spend time for myself.

I: What role should your insurance company play in compliance, if any?

- P: Paying for it.
- I: Pay for what?
- P: Medication, office visits.
- I: Should they pay for more, a diet plan, an exercise program?
- P: I would love it. I would love for them to promote these things, to pay for an exercise program and pay for nutritional information.
- I: Wouldn't it be nice to have an insurance company pay for Weight Watchers?
- P: Yes.
- I: So you don't have a problem with [an] insurance company paying for these things?
- P: No and I would take advantage of these things if they paid for it.
- I: This would motivate you?
- P: Yes absolutely!
-
- I: Does your wife's insurance call you about your blood pressure?

- P: No. We get a discount if I go to the doctor for a yearly physical.
The doctor signs a paper and we get a discount.
- I: Would you be opposed to them, the insurance company, calling you? Is it their role?
- P: It's up to them, but you know I figure that is why I pay for insurance. I am not a smoker, just a poor eater, you know? I would say if they are giving me free insurance then they have every right to get on our butt, but since we are paying a good penny for it they shouldn't have a say so into my personal life.
- I: So it would be better for the doctor to be a little more aggressive, than the insurance company?
- P: Oh yeah, the doctor but not the insurance company.
- I: So you would take it better from the doctor?
- P: Oh yeah, the doctor should be more aggressive than the insurance company.
- I: Do they give you any incentives, say cut insurance premium if your blood pressure is down?
- P: No.

I: Would that work for you?

P: Yes, I think so, yeah, because that is a pretty big incentive, to cut the premium.

I: What about the insurance company? Should they help with compliance, and if so, how?

P: They don't do anything. Maybe they should. They reimburse me, I talk to them about preapproval, they cover it. That is all, cost control.

I: Would you see it as their responsibility?

P: Umm, well I imagine, well they probably know better than the doctor about what these things are doing. The pharmacist knows the most, doctors know the least. The insurance company sees/knows from experience, they see the information. They should know what a good plan of action is, but they don't, they don't volunteer that.

I: What do you think is the option for people in this situation of being under-insured or no insurance?

P: I really don't know, maybe more state clinics so you can go and get basic things done, take care of blood pressure, someplace to go when you are sick and pay a nominal fee. Right now I negotiate a fee with my doctor. I have to give them the fee when I come in. I have to give it each visit. I would like some flexibility in payment options. What I don't understand is why an insurance company gets these huge discounts but I am expected to pay the full amount? I have to pay off the full rate, not the insurance discounted rate. I would rather pay off the discounted rate. The discount I get doesn't even come close to the discount the insurance company gets.

I: If your husband's insurance gave you a huge discount for losing weight and get the blood pressure down, would that be incentive enough, with or without the doctor, to lose weight?

P: Whew, probably in the short run. But I don't think I could maintain it, and it would depend on how much weight you had to lose, if you had to lose 50 lbs. by this date or we aren't paying, nah, I couldn't do that. If it was lose 10 lbs. over next year, I would try that.

I: So it would need to be something manageable and not overwhelming?

P: Yes, yes.

I: How much would you be willing to pay for improved office visits or should the insurance company pay?

P: I think the insurance company should pay for that; they benefit so I think they should take responsibility to pay [for the improved office visits].

Community Role in Compliance. Community in this research was defined as an entity outside the medical establishment, and included the food industry, the work place, churches, schools, media, and government. The family might be considered outside the medical establishment as well, but may hold influence different from the community or medical arena. The patients had mixed views on the appropriate position for the community to take to impact compliance to hypertension guidelines. Some community influence was considered better than others. Incentives were brought up again as important to change behavior.

I: When you look at the types of food we have available today, what role should the community play, should we have healthier foods?

P: I don't blame McDonalds for what they do. It's like the tobacco companies, they are out to make a buck, but hey, if you are dumb

enough to put it in your mouth, then, well, you are dumb enough to do it.

I: What about the school system in the community? How can we help people become more preventive focused [through education]?

P: Well, didn't they just change the health table?

I: The food pyramid?

P: Yeah. I think it is up to the parents, to be sure the kids get enough exercise, you know.

I: Do you think if there was a financial incentive, like \$1000 off insurance if you lose X amount of lbs. in the next 20 weeks?

P: Yeah, oh yeah, that would help. Everyone wants McDonalds to stop serving fries, everyone wants a nanny state, it's this place's fault if the kids are obese; it is the school's fault. The parents need to be more involved; they need to take their kids out for exercise. We can talk about change, I get that, but the parents need to be involved. All the parents want is not to be bothered. I am going to have a health fair at my cousin's church: foot doctor and blood pressure taking, something to help them have better health. I feel obligated to do these health fairs.

I: That is a community event to help people improve health?

P: That's right, we are giving them knowledge. Minority communities, I know unless someone says we are going to have turkey bacon, someone like me, they aren't going to do it because I come from a different place. Someone like me can give them education and knowledge.

I: Does your wife help you with your blood pressure control? Do you object to her suggesting things to you?

P: You know my wife recently said I thought you were going to run again. I thought you were going to do this and that? I bought a brand new bike. I am one of those guys full of the reasons why I won't do it.

P: There was a group of people we used to do spin club with, but we moved and I don't have that group to go with. I like the social time.

I: How about a group visit for hypertension at the doctor's office?

P: That would be great, oh yeah, social time, yeah just like Weight Watchers. Write our numbers down and see if we can beat our numbers. I would be for any study that would say, hey I need you

to lose 50 lbs. and see what your numbers are. I would do it in a heartbeat.

I: Very difficult when you go out to eat today and try to find low fat, low salt foods. What are the options?

P: I don't know that there are any, especially in the good restaurants. We have eliminated the fast food restaurants out of our diet, partly thanks to the media helping us see they are not good for us. We don't eat French fries anymore. We used to love McDonalds [but] we don't eat there anymore. We go to sit down restaurants, nice ones, [but] there is no indication on the menu as to what is a heart healthy diet. I may tell them to eliminate the fat, but I never tell them to alter the seasoning on the food. I say don't put butter on [when at] the restaurants, but I don't know how much salt is in it. I don't tell them how to flavor it.

I: Should the food industry accept some responsibility for the content and produce foods low in salt and fat, and processed food in the store should they share some responsibility in this?

P: No, not really. I think the food guidelines need to be on the package and the information on the packet. The consumer should say: way too much sodium in this, so I won't buy it. Is it harder to

find some of those choices, yes, but you have to find them. For example, I eat turkey. The flavored varieties have over 500 mg. of sodium; only the plain turkey has lower salt. So I choose to eat only those that are plain.

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- I: What about your employer? Could they help a bit more? What if they helped out, giving you time to exercise, offered classes? Is that part of their responsibility?
- P: I think it would be great, but I don't think it is feasible at this time.
- I: It cost your employer a lot of money for your health insurance, for every person that ends up with health problems, it costs them a lot of money. So maybe employers need to think and be more involved to help employees stay healthy?
- P: Yeah I think that is right, umm, I don't know.
- I: Would you take advantage of it if they say you have 30 minutes to exercise, or see a dietician, would you take advantage of it?
- P: . . .yeah, yeah I would take advantage of it, I would take advantage of that.

I: Do they give you any incentives, say cut [your] insurance premium, if your blood pressure down?

P: No.

I: Would that work for you?

P: Yes, I think so, yeah, because that is a pretty big incentive, to cut the premium.

I: It is hard to break our habits. What can the community do to help us be healthy?

P: I don't really know. I just think people in general are very self-focused, and I don't know. I think it is a good idea that the employer gives us time, but I don't see a lot of options. You know you don't see a lot of dieticians; you turn the corner and see McDonalds and fast foods, you don't see a lot of dieticians out there.

Discrepant Cases and Nonconforming Data

The themes in the research were broad and presented variant views, such as the role of the community in assisting in hypertension compliance. Most themes reflected two opposing sides, the patient and the physician, leading me to consider the need for patient-centered, collaborative approaches to meet compliance goals. Both patients and

physicians stated reasons why or why not community should or should not be involved. Only one physician disagreed with the role of health insurance or the health system as important to improve compliance.

DR: It is not the role of the health care system or insurance to assist Dr. F help my patients get their blood pressure down. It is between the patient and me. Why do we need a system to do that?

Evidence of Quality

To ensure validity in qualitative research, it is incumbent on the researcher to check for accuracy of the findings by using certain procedures (Creswell, 2009). One procedure was to carefully check the transcripts to be sure mistakes were not introduced during the transcription process. I transcribed each interview, word for word, from audiotapes, and transferred the text directly to the MAXQDA software. Checking for “drift in the definition of codes” (Creswell, 2009, p. 190) was done by a constant review of code definitions prior to selecting a code for a segment of data. Code definitions were entered into the memo section of MAXQDA as each code was identified. I had considerable experience in physician offices, ensuring greater accuracy in detail. Rich, thickly detailed transcriptions were presented to convey meaning and provide a solid framework for comparative analysis in Chapter 5.

An external auditor—a recent Walden University PhD graduate with qualitative research experience—was enlisted to verify themes and codes I derived from the interview transcripts. The auditor made suggestions for additional themes and codes for

both the physician and patient data. In addition to the data audit, one patient participant was asked to validate the accuracy of findings in Chapters 4 and 5. Finally, I reflected on my own biases and experiences. For example, I realized a bias against insurance companies, whose policies created an undue administrative burden and created barriers for compliance. I also identified a bias towards patient-centered, evidence-based healthcare that allowed for greater accessibility and an expanded focus on population health.

Summary of Results

The findings presented in Chapter 4 provided an in-depth exploration of physician and patient views of barriers to hypertension guidelines compliance in a Midwest town. The nine physicians and seven patients interviewed provided rich data to explore barriers and solutions to increase hypertension guidelines compliance. Patients and physicians both expressed a responsibility to change, but all patients wanted to see the physician involved in ways different from their current physician/patient arrangement.

Chapter 5 provides an interpretation of findings and a comparative analysis of patient and physician interviews with a proposed theoretical framework to increase compliance. The impact on social change, recommendations for further research, and conclusions are also presented.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Hypertension control improved in the United States between 1999 and 2008 in 50% of all individuals with hypertension, mostly due to awareness and medication increases (Egan et al., 2010). However, prevalent hypertension is not declining toward the 16% national goal set in Healthy People 2010. Without considerable changes in risk factors or treatments, the aging of the U.S. population will result in a sizeable increase in coronary heart disease incidence, prevalence, mortality, and costs. Lifestyle changes to achieve the Healthy People 2010 objectives, for blood pressure, lipids, obesity, smoking, and diabetes, could offset by 70% the increase in disease attributable to the aging population by 2040 (Odden et al., 2011). Despite numerous studies, a gap existed in understanding both physician and patient barriers to implementing hypertension guidelines. Developing a synthesized model, addressing both patient and physician barriers to hypertension guidelines compliance, was the objective of this research.

The physician and patient themes related to hypertension compliance are discussed in this chapter, based on current theoretical frameworks. An emerging model of compliance is proposed in Figure 2. Recommendations for action, further research possibilities, implications for social change, and my experience are also presented.

Two questions formed the basis for the constructivist design of the research:

1. Why is compliance to hypertension guidelines by the patient and physician so low?

2. How can compliance be increased to reduce morbidity and mortality caused by hypertension?

Face-to-face interviews with nine physicians and seven patients (non-dyad) were conducted. The original design for this study called for patient and physician participants from one PHO in the Midwest United States. However, to achieve greater racial and gender diversity, the participant pool was expanded to include four patients and one physician from another health system in the same geographic location.

All patients had a history of noncompliance to hypertension guidelines, such as an elevated BMI of 25 or greater and/or no defined exercise program. None of the patient participants were current smokers. All followed daily medication regimes with a high degree of consistency. The documented blood pressure of six of the seven patient participants was 140/90 or higher. One patient was not aware of his blood pressure readings, but was told by his doctor that it was high when checked at office visits. Six of the seven patients had health insurance, earned over \$25,000 per year, and five had completed a 4-year degree or higher. The patient participants of this research would not be considered underserved.

The physician participants were all primary care physicians practicing internal medicine or family medicine. They included four males and five females; five were over age 50, three were under age 50, and one was 50 years old. Six of the physicians held MD degrees and three held DO degrees. Two of the physicians were educated outside the US and seven were educated inside the US.

Themes resulting from the interviews were separately defined based on the physician interviews and the patient interviews. Physicians and patients were both asked questions related to broad categories of awareness, relationships, compliance, and methods or activities of compliance. Probing questions were used to gather opinions, values, and feelings related to the categories, patient/physician relationship, and compliance. Knowledge, behavior, and experience related to hypertension guidelines awareness, as well as activities or methods to improve compliance were explored with both groups (see Tables 2 and 3).

All physicians expressed concern about the growing burden of chronic disease and felt they were not supported by the current health care system to adequately address this burden. The Partnership to Fight Chronic Disease (PFCD), a national and state-based coalition of patients, providers, community organizations, business and labor groups, and health policy experts committed to raising awareness of chronic disease, has identified chronic disease as the number one cause of death, disability, and rising health care costs in the US. Thorpe (2011) noted that more than half of all Medicare beneficiaries were treated for five or more chronic conditions each year, and 99% of every dollar spent by Medicare was for treating patients with chronic conditions (Thorpe, 2011).

The physicians cited additional barriers to compliance, such as administrative paperwork and reporting regulations imposed by the insurance industry and Medicare; lack of physician training to manage chronic conditions such as hypertension; a perceived lack of patient responsibility and negative incentives imposed on physicians by insurance companies for patient noncompliance; and a general lack of understanding and lack of

time to address theoretical frameworks such as self-efficacy and health belief models. Professional journals were the main source of information about hypertension guidelines for the physicians; however, two respondents mentioned attendance at seminars and one mentioned online information (mostly relating to health care technology rather than care guidelines) as further methods to increase awareness about hypertension guidelines.

All patient participants expressed awareness that it was their responsibility, with the help of the physician, to make lifestyle changes and reach hypertension goals. However, all patients believed the physicians provided insufficient information and education for hypertension guidelines compliance. For example, physicians did not provide a definitive plan to patients that included understandable and manageable goals for improvements in lifestyle. Patient readiness to change was not explored with patients by their physicians. Patients' beliefs about their own health (i.e., health belief model) or how they could impact their hypertension with lifestyle changes (i.e., self-efficacy) were not discussed with patients in a formal, intentional manner.

Analysis and Synthesis

The purpose of this study was to form a new theory of hypertension guidelines compliance by synthesizing physician and patient views concerning their respective barriers to compliance. Understanding physician and patient interactions as a dynamic whole rather than two separate parts was a critical aspect of the research design. Human behavior is rarely impacted or explained by isolated variables. Rather, the interdependence of variables in a cultural context serves to explain the whole as a complex system that is greater than the sum of its parts (Patton, 2002). A comparative

analysis, the central analytical approach in grounded theory research, between the physicians' views and the patients' views of hypertension guidelines compliance was conducted (Patton, 2002). The differences between the two groups of respondents became clear based on this analysis, and areas of commonality were identified (see Figure 2).

Physician and Patient Methods of Compliance

Interventions

Actions or interventions intended to assist the patient with weight, eating habits, smoking, exercise, and medication compliance were explored in the interviews with physicians. Patients were asked to describe interventions for weight control, low salt diets, exercise, and medication compliance provided by their physician and the impact on their blood pressure. All the physicians believed they spent time educating the patient by means of talking to them and providing materials or referring patients to Internet sites. However, none of the patients believed their physician provided adequate education on the subject, and the information received was not helpful to promote lifestyle change or increase compliance. Patients knew they needed to lose weight and exercise to reduce their blood pressure, but had little understanding of the correlation between weight and exercise and hypertension compliance. Physicians were reluctant to send patients to dieticians due to lack of coverage by insurance companies, however they did encourage weight loss plans such as Weight Watchers. Exercise was the least covered topic, based on both patient and physician interviews. Exercise has been suggested as a nonpharmacological intervention for elevated BP, in part because studies have

demonstrated a reduced post-exercise BP in relation to pre-exercise resting values (Simoes, Moreira, Kushnick, Simoes, & Campbell, 2010). Another benefit of exercise in hypertensive patients was reduced plasma concentrations of fibrinogen and C-reactive protein. Exercise also reduced inflammatory responses and prevented fusion in platelets (de Meirelles et al., 2011). All patient participants cited lack of time as the main reason for failing to exercise. However, Wen et al. (2011) found that 15 minutes of physical activity per day for 6 days a week compared with individuals in an inactive group reduced all-cause mortality by 14%, and extended life expectancy by 3 years. None of the physician participants in this study explained the benefits of exercise to patients with hypertension; none of the patient participants expressed knowledge as to the benefits of exercise.

All patients felt confused about evaluating information from their own research or from their physicians, and didn't know how to apply that information to their own situations. For example

I: Do you feel the doctor gives you enough knowledge, [information] to know the impact hypertension can have on the quality of your life? Does he explain what hypertension can do to your body and the quality of your life?

P: Yes and no. Yes from my research, but *not* from the doctor. I am sure I have a lot of holes in my information. One of the challenges for patients: so much available online and so little available from

[the] doctor's office, how do I take that information, know what is accurate, and apply that to my life?

Health literacy, as developed for the National Library of Medicine and used in the Healthy People 2010 report, was defined as the degree to which individuals had the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Perlow, 2008). More than 90 million people in the US have significant difficulty in reading and comprehending written patient information given to them in the form of self-directed patient instructions (Nielsen-Bohlman, 2004).

In a study conducted in the Netherlands, primary care physicians were charged with providing patient education as a means to improve patients' motivation for and ability to adhere to hypertension treatment guidelines. The physicians were advised to use patient-centered educational approaches to explore patient beliefs and needs, and to improve compliance. The physicians were encouraged to use the "Five A's" as the basis for discovery: ask, assess, advise, assist, and arrange (Haafken, Beune, Moll van Charante, & Agyeman, 2009). None of the physicians in the current study created formal written plans for patients with hypertension or addressed patient information needs with techniques such as the "Five A's."

Medication compliance was not a major problem for the patients in the current study. Only one younger female admitted to being noncompliant at first, but a high blood pressure scare while visiting an urgent care clinic convinced her to take her medications daily. The physician participants believed the cost and side effects of hypertension medication were not barriers to compliance. Only one physician believed patients

remembered to take their medications 80% of the time; another thought patients remembered 50% of the time. Three physicians stated that medications to control lipids had a higher rate of noncompliance due to patient beliefs of side effects.

Team intervention concepts, such as using pharmacists to improve compliance, were not employed by physicians in this study. To test the effectiveness of a team-based approach to increase hypertension medication compliance, Carter et al. (2009) conducted research with clinical pharmacists who were assisting physicians with drug therapy choices based on national guidelines for blood pressure control. In six months, guidelines adherence scores increased by 55.4%, with blood pressure reductions of 20.7/9.7 in the intervention group ($p < .05$). In contrast, adherence scores in the control group increased only 8.1%, with blood pressure reductions of only 6.8/4.5.

In another study (Hunt et al., 2008), pharmacists were allowed to change patients' hypertensive medication according to guidelines without consulting the physician in advance. Significantly lower blood pressures were achieved overall, and 63% achieved target blood pressures below 140/80 compared to only 44% of the control group (Hunt et al., 2008). Results also indicated that patients were satisfied with the physician/pharmacist team, were at ease with the approach, and were satisfied with the care they received. Furthermore, patient trust in their physician was not diminished (Hunt et al., 2008). In the current study, only one patient and one physician mentioned the role of pharmacists. One patient commented

I: The pharmacist knows the most about the [your] meds
[medications]?

P: Yes, there are two ladies at CVS that always tell me what to expect. They manage my meds. I forgot I was taking something, two double-strength antibiotics, and they told me if this happens. . . they cautioned me. . . then stop immediately and call your doctor.

I: The pharmacist told you, not the doctor?

P: Yes it was the pharmacist not the doctor. They are helpful.

One physician commented

DR: I think some of it is the pharmacist. Some of them overstep a little bit, the information they give to patients, and it scares them. It puts us in a hard spot because I don't want them to call me about everything. But the pharmacist can give scary information, so we need better communication with [the] pharmacist. I know of some pharmacists that said, "Oh your doctor gave you this medication?" And the patient says "Is there something wrong?" And the pharmacist says "Oh I am sure it is all right." But that left a doubt [or] question mark in the patient's mind about the medication and with one side effect the patient stops the medication; they think I gave them something wrong.

Professional Support

Six of the seven patients said they would appreciate follow-up calls from their physician or office staff to ask about compliance to diet and exercise. The one participant who originally felt it would be an intrusion into her private life decided later that a follow-up would be welcomed if conducted in a helpful manner and tone. All patients preferred follow-up calls to come from their physician's office rather than their insurance company. According to one patient: "Follow-up helps you stay on track." Services such as weight clinics, dieticians, exercise programs, and group visits were thought to be beneficial ideas from both the patient and physician perspectives, and both groups believed the insurance company should pay for this type of support to reach compliance goals.

All physicians expressed a desire to establish group visits for hypertensive patients, but cited lack of space and no insurance reimbursement as reasons they were unwilling to try this approach. All patient participants except one expressed an interest in group visits. Patient willingness to attend group visits was described in one study (Kawasaki, Muntner, Hyre, Hampton, & DeSalvo, 2007). A group was defined as 10-15 patients, both men and women, who had been diagnosed with hypertension, and met every 2-3 months for 1-2 hours with their physician. The visits were considered medical, and the patients' healthcare needs pertaining to hypertension were addressed. The patients could talk about high blood pressure, its treatment, and complications from medications in the group. If needed, patients could see the doctor individually after the group meeting. Sixty-eight percent of the individuals who were asked to participate in

group hypertension visits attended, and 80% said they would have attended if incentives, decreased wait time at doctor visits, more time with the doctor at each visit, parking or transportation subsidies, were offered (Kawasaki et al., 2007). Outcomes for compliance and cost effectiveness of group visits were not studied in the Kawasaki et al. (2007) research.

Physician/Patient Relationships

Role of Physician/Patient Relationship

The physicians believed a strong doctor/patient relationship was critical to compliance. One physician cited trust as a key factor in building good relationships, yet current practices can negatively impact trust as expressed in this physician comment:

DR: Before we shake a patient's hand we are asking them to sign 15 pages of paper. This creates mistrust, so if we create mistrust in the relationship there is no way we can create a healthy personal relationship to impact change; but that is where we are heading.

All nine physicians said that length of time with a patient was the key to building good relationships. Six took more time with patients than the average 15-minute office visit, even though this practice reduced their income. The physicians expressed concern that increasing expenses would erode the time for patient visits, as in this example:

DR: I do allow time for my patient visits but I made a conscious decision and it definitely affects my bottom line, so I make way less than the average for our area. I make less money but I sleep

better at night knowing I am the kind of doctor I always wanted to be. As long as I can pay my malpractice and my rent. . . but as reimbursement declines it is more difficult to stick with this ideal office view.

Physicians said the administrative burden created by the insurance industry created barriers to building good relationships with patients. Office resources were being directed towards meeting insurance requests, but physicians felt these resources could be used to improve patient care and compliance.

Patients also believed that the doctor/patient relationship was important for compliance; however, six out of seven did not believe they had a good relationship with their doctor. Length of time spent with their physician was not cited as a barrier to building an effective relationship or to improved guidelines compliance, according to the patients. None of the patients expressed an awareness about the administrative burden physicians were experiencing. Three patients mentioned office staff issues impacting their relationship with their doctor. For example, one cited “snooty” office staff, and another said the staff was upset when she stopped in for a blood pressure check as suggested by her doctor. Another patient expressed the following

P: I shouldn't say this, but surprisingly the nurses don't do much, but some of them, half of them don't do anything. One nurse took my blood pressure and she didn't tell me what it was so I asked, and she said 115/? I said: you must have a hole in your hose, there is

no way, that can't be right, do it over. She said it was not necessary, so I watch out for her.

One patient felt she was just a number at the doctor's office. A good relationship was described by patients with words and phrases like the following: gentle, nonjudgmental, someone to listen to you, work with you, a partner, one that asks questions about my concerns.

A study using a questionnaire completed by 138 patients with hypertension—aged 63 and under from one town and three municipalities in Finland—showed compliance can be improved by good relationships between the client and health care personnel (Kyngäs & Lahdenperä, 1999). This study stressed the importance of enabling individuals to take an active part in planning their care together with health care personnel. Kyngäs and Lahdenperä (1999) defined compliance from a nursing science perspective to mean the hypertensive patient who took responsibility for changing his or her lifestyle according to recommendations, and worked collaboratively with the physician and other medical staff to make decisions towards that goal.

Data from the current research supported this definition. Patients wanted to have their blood pressure under control, they knew it was their responsibility, and wished to collaborate in the decision-making process concerning their care. However, none of the physician participants expressed the patients' view of compliance in this manner.

Health Insurance

The physicians expressed strong feelings about the interruptions and intrusions created by the insurance industry. All believed the administrative burden of the insurance

companies was reducing the time and resources spent on patient care. One physician respondent found it intolerable to be required to track hypertension medications and switch medications when a generic medication had been prescribed and was working well. Eight of the nine physicians also cited decreased reimbursement and lack of coverage for preventive services as insurance concerns. Eight of the nine physicians thought that insurance companies should offer incentives for patients to meet their health goals, rather than decreasing reimbursements to the physician.

All patient respondents believed the insurance company should extend coverage for weight management programs, exercise programs, and group support to assist them in compliance. All preferred their doctor, rather than the insurance company, follow-up with them for issues of compliance and support.

Health System

All the physician participants perceived the health system as closely associated with the health insurance industry. Eight of the nine believed the health system needed to change to increase compliance and improve outcomes. However, suggestions for specific changes were not well defined except in regard to reimbursement and reducing the administrative burden on physicians. One physician thought that increased pay would attract higher quality physicians, which in turn would improve compliance and outcomes:

I: Do you feel the current health care system assists you in increasing patient compliance? Why or why not?

DR: We are paid on volume.

I: Do we need to move off that system?

DR: We have to move off that system. To be honest, I don't know what the perfect system is, but you have to value the primary care doctor and I know there is banter about what percent to pay primary care docs compared to the specialist. Seventy to 80% of the specialist [pay] should be paid to the primary care physician. We could attract better primary care doctors that way. But we need to do it based on complexity, time frame, not the volume of patients. I am not the expert on that. Maybe based on RVUs [relative value units]; not entirely sure it should be pay for performance; pay for performance is the big white elephant, but I don't know if anyone really knows how that works to be beneficial to everyone. You can do everything right and still have bad outcomes [for the patient].

In contrast, one physician disagreed:

DR: It is not the role of the health care system or insurance to assist Dr. X help my patients get their blood pressure down. It is between the patient and me. Why do we need a system to do that?

A 36-month U.K. study involving 470,725 patients regarding how pay for performance (P4P) affected the management and outcomes of hypertension was conducted (Serumaga et al., 2011). The researchers concluded that while quality of care

for hypertension compliance was improving prior to the P4P implementation, P4P had no additional discernible effects on processes of care or on hypertension-related clinical outcomes. Additional studies reviewed by Serumaga et al. (2011) suggested that the behavior of doctors in industrialized nations outside the UK was similar to their findings. They argued that alternative approaches, such as care managers or co-management of hypertension with pharmacists or other allied health professionals, might be a better use of healthcare money (Serumaga et al., 2011).

Ideal Office of the Future

The physicians perceived the ideal office of the future as using more mid-level providers such as nurse practitioners, as well as allied health professionals such as health coaches. They also expected an increased use of technology.

The doctor's office of the future as imagined by all the patient participants was different than today's office and would include individualized and patient-centered care, in addition to group sessions and health coaching. Patients expressed a desire for increased follow-up and communication by the physician in regard to hypertension guidelines compliance, and a greater emphasis on teaching and learning at levels and amounts the patient could understand. Collaboration with the physician about care options and an explanation of choices were also cited. Only one patient mentioned technology. Most were not familiar with the function of the electronic health records and only one (the patient without insurance) knew about the Internet portal for communication between the doctor's office and patients. This patient thought e-mail communication was a way to reduce her medical expenses.

With the increased use of EHR in all medical settings, and incentives by the government to adopt EHR, use of patient portals for communication is expected to increase. Mooney and Boyle (2011) suggested that the move to an online patient portal to allow easy access to medical information and communication with the physician supported greater collaboration and involvement for the patient. Using a patient portal was proposed to improve practice processes as well as patient satisfaction (Mooney & Boyle, 2011).

According to Mooney and Boyle (2011), the truly innovative physician practice will be a patient-centered medical home (PCMH), and all collaborative technologies will start with the EHR. Physicians will be expected to consult with patients and families more often. The physician's office will manage a care team, members of which may not be located in the same physical space. Pharmacists, community services, and weight loss programs may all become part of the team to assist patients with compliance (Mooney & Boyle, 2011). Managing data and conducting effective people-to-people communications and collaborations will be the emphasis of physicians and staff of future doctor's offices. The results of my study and my model of compliance support the American Academy of Family Practice (AAFP) definition of PCMH that includes, in addition to other elements, a medical practice with an enhanced patient experience achieved by engaging and collaborating with the patient through the development of a care plan providing relevant, realistic goals to improve compliance (AAFP Website, PCMH).

Awareness

Dissemination of Hypertension Guidelines to Physicians

The dissemination of information in an organization was found to occur spontaneously through informal efforts, or actively through formal, centralized efforts (Yuan et al., 2010). The degree of success depended on an organization's internal environment (Yuan et al., 2010). The impact of organizational influence on the physician as pertained to guidelines compliance [such as JNC-7] was considered a major factor in individual change (Yuan et al., 2010).

Physician participants in my research obtained hypertension guidelines knowledge spontaneously and informally from journal articles and occasional seminars. One physician used her own experience with patients as her guideline. All nine physicians were familiar with the JNC-7 hypertension guidelines. There was no evidence that the PHO, organizational pressure, or peer pressure was used to increase compliance of hypertension guidelines among the physician respondents.

A Cochrane review (Farmer et al., 2008) concluded that printed educational material, when used alone, had a minimal desired effect on changing physicians' process and practice. However, printed material was thought to be better than no educational material and was inexpensive to distribute. A study researching online continuing medical education courses compared to printed educational materials concluded that the physician's comfort level and expertise with computer functions determined effectiveness (Docherty & Sandhu, 2006). The physicians in this study did not express the use of computerized programs for educational programs. Computerized data for hypertension

compliance guidelines, utilized in the PHO, did not impact compliance awareness.

Information disseminated by the insurance company to impact guideline compliance was thought to be inaccurate and ineffectual by all physicians.

Germino (2009) expressed concern about how the new hypertension compliance guidelines, JNC-8, would be disseminated. The pharmaceutical industry played a major role in that effort for previous guidelines, but several factors are different for the JNC-8 guidelines: more restrictive laws on the pharmaceutical industry, the current economic recession, and the increased use of generic hypertensive medications that provide only modest incentives to insurance companies to spend marketing dollars on dissemination (Germino, 2009). The responsibility to disseminate the JNC-8 guidelines will fall to other entities that have not been involved before (Germino).

Campbell et al. (2010) reported on the Canadian Hypertension Education Program (CHEP). Canada has been more successful in reducing blood pressure rates than any other developed country. CHEP provides an Internet site for physicians on which lectures are periodically posted from leading world experts on hypertension, along with other online resources for patient education (Campbell et al., 2010).

Self-efficacy and Health Belief

None of the patient participants' believed their physicians addressed motivation to change, self-efficacy, health beliefs, or cognitive-behavioral understanding. Physician participants cited a lack of understanding of these concepts and lack of time as reasons they avoided such discussions. Some physicians made comments that suggested they understood that readiness for change was a key component to hypertension guidelines

compliance, but their statements indicated a lack of understanding about how to assist patients with such skills. The following are three examples.

DR: I often say “Whenever you are ready come back to me; otherwise you are wasting my time and your time.”

DR: All I said is once, on one visit, “You really should stop smoking.” That was pretty much it; I didn’t twist his arm. Maybe he was ready to change. He did stop smoking, he was ready to change.

DR: I almost never use diet with my patients. I ask them are they ready to make a lifestyle change and if they say “what?” then I know they are not ready.

None of the physicians or patients had had a discussion about health beliefs, ethnicity, and cultural experiences in the context of an office visit. One patient explained about a drug reaction that a pharmacist friend told her often occurs in African Americans. I asked about her physician’s response to her ethnicity and hypertension, and she replied:

P: She says “with your history.”

I: But never equates to ethnicity?

P: No, she says only based on your history.

An African American patient said “his people” believed him when he talked about diet changes, suggesting that living in a particular ethnic culture and understanding the issues related to food customs and habits helped in discussing alternatives.

P: Minority communities, I know, unless someone says we are going to have turkey bacon—someone like me—they aren’t going to do it because I come from a different place. Someone like me can give them education and knowledge.

Food preferences are a major part of all cultures around the world, and the typical diets for various cultures can either help or hinder hypertension guidelines compliance. One patient stated

P: It is comfort food. It tastes good and like home. When we have that we are happy and we are singing as we eat, but when you try to eat healthier we aren’t singing, you just eat to keep nourished.

Wexler, Elton, Pleister, and Feldman (2010) conducted focus groups to understand African American patients' opinions about barriers to hypertension guidelines compliance. Of greatest concern was a lack of trust in their healthcare provider and a fatalistic, hopeless mindset (Wexler et al., 2010). In my research, one of the two African Americans expressed something similar in the following exchange:

I: Do you believe you have the personal ability to manage, control, or improve your blood pressure?

P: No, other than through medication.

A similar hopeless mindset toward hypertension guidelines compliance was noted in one Hispanic participant as well:

P: I had it for so long [hypertension] and I was active and still had it.

It is in my blood no matter what I do.

I: So do you think that underlying attitude in your mind makes you feel: why should I bother?

P: Kind of yeah, yeah.

I: So, in a way, you don't really feel like you have control over this hypertension?

P: Exactly. I feel like I don't have control, you know, because my mom has it and my grandparents had it.

Pickering (2004) reported that Hispanics have higher rates of obesity and diabetes, but their incidence of hypertension is far less than African Americans. Pickering (2007) further noted that studies on hypertension in Hispanics were both sparse and confusing. Earlier studies showed

Non-Hispanic African Americans having the highest prevalence of hypertension (33.5% in 1999-2000) and Mexican Americans the lowest (20.7%); Whites were in the middle (28.9%). The lower rates in Mexican

Americans cannot be attributed to better awareness or treatment of hypertension because both measures were lower in this group than in either of the other two groups: in 1999-2000 the percentages of persons with hypertension who were receiving treatment were 60% for African-Americans, 63% for Whites, and only 40% for Mexican-Americans. (p. 2)

Education/Information Needs

All physician participants believed they did an adequate job educating the patient, however none of them developed specific care plans for their hypertensive patients. Patient participants thought physicians lacked general knowledge to answer such questions as what blood pressure cuff to purchase, the relative merits of sea salt over processed salt, and medication side effects. One patient with comorbid conditions noted a lack of coordination between his physicians and conflicting information about how to control his hypertension and diabetes. This conflict left him feeling confused and depressed as both his blood pressure and glycemic levels were out of control.

Both physicians and patients believed visual material with examples of food, exercise, and blood pressure diagrams were more effective as educational tools than words alone. Only one patient preferred to conduct her own research, but still appreciated illustrations and examples. One physician took time and money to develop a “life planner” for his patients, either as a printed book or on a memory stick. The planner contained graphs, narratives, pictures, and tables to fill in. Patient were to bring the planner to each visit, however

DR: It hasn't been as well accepted as I thought [it would be].

Education is not always the answer to get people to change; I think people need to be incentivized to change.

Health literacy was addressed under interventions earlier in this chapter and remains a key element in effective learning.

Storytelling via an interactive DVD was noted as an effective way to improve hypertension guidelines compliance in a vulnerable population (Houston et al., 2011). Evidence suggested that storytelling assisted individuals to make meaning of their lives as they actively engaged in a story. Participants developed self-efficacy as they identified with the storyteller and pictured themselves taking part in the action through vicarious experience. Narrative health communication, another effective tool, lessened cognitive resistance to behavior change (Houston et al., 2011). This effect was noted in my research during an extended dialogue with a patient participant. He refused to know his blood pressure readings and 15 days prior to his yearly physician office visits he would “starve” himself and exercise every day. His response after 25 minutes of dialogue with me was “no one has ever talked to me that way” (i.e., no one has ever challenged his logic).

Compliance

Reasons for Noncompliance

Both physician and patient participants cited “lack of time” and “being too busy” as barriers to hypertension guidelines compliance. However, the physicians also thought

patients were not compliant because lifestyle changes were difficult to make and they lacked motivation. For example, one physician stated

DR: Lifestyle changes [are] too painful. They like the salty food, in denial about the seriousness of the disease in their mind. The change is too difficult.

Patients had a different interpretation. The change was difficult because they lacked a specific plan tailored to their needs and lifestyle. Also, four patients stated the motivation to change was often the result of a negative health experience, as expressed in this comment:

P: I am waiting for something bad to happen; then I will get started.
But not too bad.

Kirkendall et al. (2010) cited similar results in their study of African Americans. Life stories of people the participants knew who had experienced stroke or death motivated them to make necessary changes to a healthier lifestyle. While fear was a powerful motivator, other strategies were also needed to sustain change. For example, trust with physicians, social support, and culturally acceptable food alternatives were also mentioned as important motivators to change (Kirkendall et al., 2010). A commonality between the current research and the Kirkendall et al. (2010) study was described in the following:

The groups also made it clear that they did not want more literature to read. Therefore, active, hands-on activities that engage participants and reinforce skills were incorporated in the activities. Demonstrations and activities that the participants can be involved in during the educational session are more likely to be effective. (p. 110)

In another study, 1048 people were offered a genetic scan for health risks (Aldhous, 2010). Follow-up calls were made to participants at 2 and 6 months after the scans. Thirty-four percent of those called said they were more careful about their diet, 14% said they were exercising more, and 16% had changed medications or dietary supplements. The concern, as cited in the article, was the negative impact of such knowledge on people who lacked self-efficacy or those who tended to a fatalistic attitude (Aldhous, 2010).

Motivational interviewing was found to be useful for individuals in early stages of change, assisting them to transition from a state of unawareness or unwillingness to take action, to a state of considering the possibilities and preparing to make changes (Walpole, Dettmer, Morrongiello, McCrindle, & Hamilton, 2011). *Motivational interviewing* was defined as a patient-centered method of therapy to enhance the motivation to change by exploring and resolving uncertainty, and included such methods as reflective listening, summarization, shared decision-making, and agenda setting (Walpole et al., 2011).

Motivational interviewing helped individuals address both self-efficacy and health beliefs by allowing them to articulate why it was important for them to change (Walpole

et al., 2011). Increased physician or care manager skills by training in motivational interviewing could impact patient compliance to hypertension guidelines.

Physician/Patient Responsibility for Compliance

All the physician participants in my study believed their responsibility in regard to hypertension guidelines compliance was to educate the patient on the guidelines regarding medication and lifestyle changes, and to manage medications to control hypertension. While patients believed it was their sole responsibility to affect lifestyle changes and be consistent with medication regimes, they also believed the physician should partner with them in education and consultation to develop a plan that addressed their unique needs. In response to whether compliance was the physician's or the patient's responsibility, one physician expressed it this way:

DR: I think it is both, definitely both. I definitely play a role and I feel definitely responsible for the success and for the failure. Does this mean another physician can exceed where I failed? Possibly.

Heisler (2008) cited a World Health Organization statement from a 2003 report: "Improving patient self-management of chronic diseases would have a far greater impact on the health of the population than any improvement in specific medical treatments" (p. 1355).

Community Involvement to Assist Compliance

Community support for compliance was considered by eight of the physicians to refer to changes in the food industry. For example, making the salt and fat content of food

available for people to evaluate choices, and healthier food options, especially vegetarian dishes. In addition, changes to the educational system and some type of employer incentive for healthy habits were seen as beneficial. Regardless of community support, however, patients had to assume responsibility for lifestyle changes. One physician believed there was too much conflicting information in the community that confused the patient:

DR: You have TV people involved, you have Walgreens and other pharmacies involved, you have every magazine, trying to convince the patient they know what they are saying, telling [the] patient what to do and you have the insurance company that sticks their nose into it. I believe there is a general sense of false belief that patients are given the sense that medicine is really easy, all I have to do is XYZ. My magazine tells me this, all I have to do is this and this and this. But I tell them it is not that easy. If I need a lawyer I go to a lawyer. I don't try to go online. I think this is the problem: too many hands in the pot for too many reasons.

Patients expressed mixed views as to community support, but did appreciate the food industry efforts to provide food content, especially calories, fat, and salt. Three patient respondents offered the following comments:

P: We have eliminated the fast food restaurants out of our diet, partly thanks to the media helping us see they are not good for us. We

don't eat French fries anymore. We used to love McDonalds [but] we don't eat there anymore. We go to sit-down restaurants, nice ones, [but] there is no indication on the menu as to what is a heart healthy diet. I may tell them to eliminate the fat, but I never tell them to alter the seasoning on the food. I say don't put butter on [when at] the restaurants, but I don't know how much salt is in it. I don't tell them how to flavor it.

P: Everyone wants McDonalds to stop serving fries, everyone wants a nanny state, it's this place's fault if the kids are obese; it is the school's fault. The parents need to be more involved; they need to take their kids out for exercise. We can talk about change, I get that, but the parents need to be involved. All the parents want is not to be bothered.

P: I don't see a lot of options, you know you don't see a lot of dieticians. You turn the corner and see McDonalds and fast foods; you don't see a lot of dieticians out there.

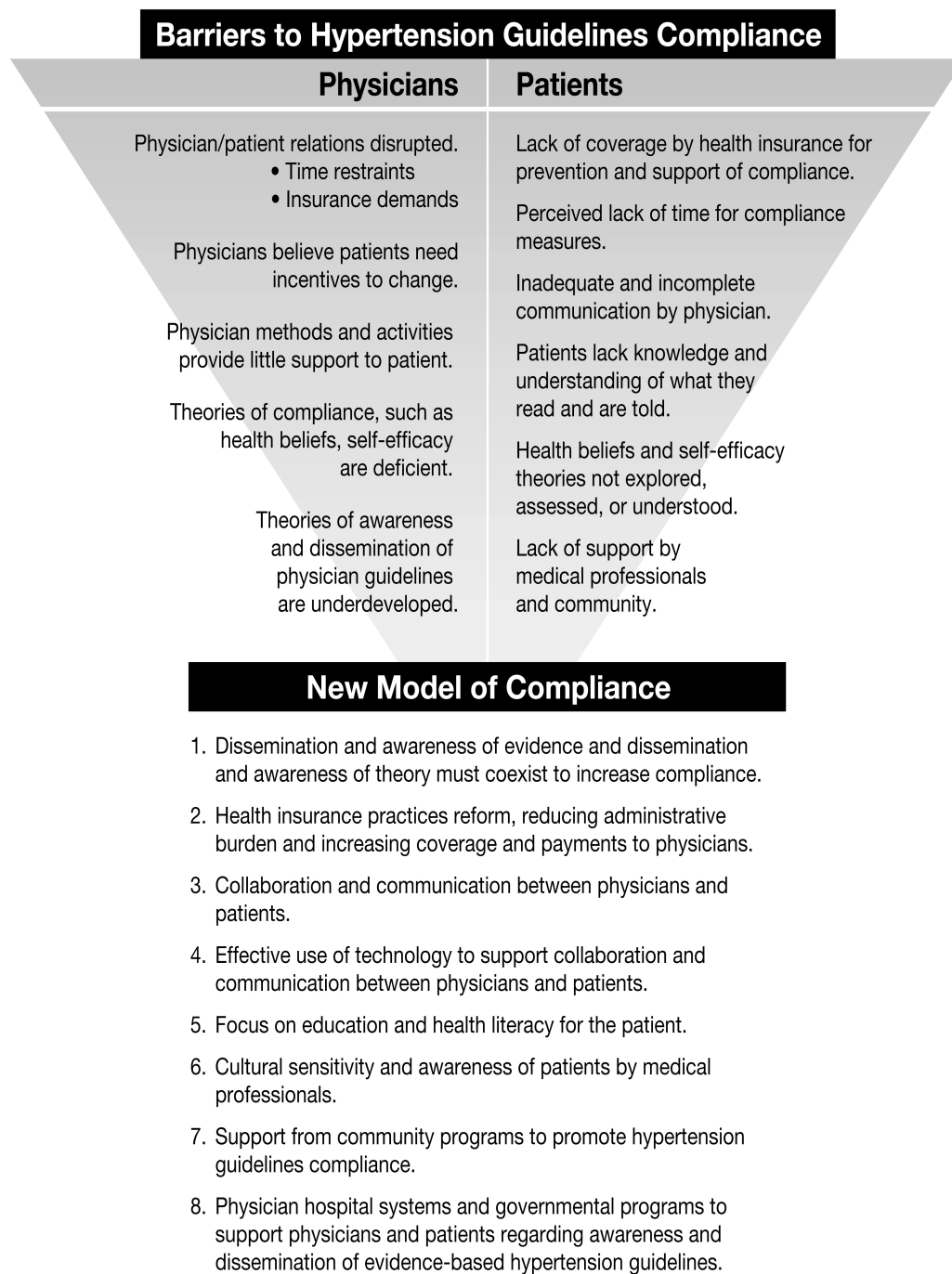
I: That is a good point: you look around and you see more un-healthy choices in life than things to help you make healthy choices?

P: Yes.

Efforts to work with the food industry to reduce salt content are already in process. Americans are consuming more than 3,400 mg per day compared to the guideline of 1500–2300 mg per day (Palmer, 2011). Congress has requested the Institute of Medicine (IOM) to develop strategies to reduce salt in foods (Palmer, 2011). In 2010, the IOM called for new government standards to limit the level of sodium in food purchased from manufacturers and restaurants. The natural sodium content in foods is only 10% of our average total intake, with 5% to 10% from salt we add. The remaining 80-85% comes from processed and prepared foods (Palmer, 2011). The National Salt Reduction Initiative (NSRI) includes a coalition of cities, states, and health organizations working to help food manufacturers and restaurants reduce the amount of salt in their products. The NSRI goal is to reduce Americans' salt intake by 20% over 5 years by developing targets to guide salt reductions in 62 categories of packaged foods and 25 categories of restaurant foods. Over 16 food companies and restaurants have agreed to the initiative (Palmer, 2011).

Recommendations for Action

A comparison between the comments offered by physicians and those of patients about hypertension guidelines compliance illuminated the differences that existed and where synthesis might be achieved. Eight recommendations to increase hypertension guidelines compliance were created from my new model of compliance as illustrated in Figure 2.



Ballou-Nelson, 2011

Figure 2. Theoretical Model of Compliance

1. Recognize that theory and evidence are needed, and both must be disseminated to improve compliance. Physicians must understand the theoretical models regarding personal beliefs about health and self-efficacy that motivate patients' behavior.
2. Change health insurance industry practices in the following four areas:
 - Reduce the administrative burden required by insurance companies to free physician and office staff time and resources for patient care.
 - Increase physician reimbursement to cover supportive services such as educational office visits (i.e., group visits) and virtual office visits.
 - Reduce insurance company intrusion into medical decisions.
 - Add coverage for services (i.e., dietician, weight loss clinics, and exercise programs) to insurance programs.
3. Increase collaboration and communication between patient and physician.
 - Add curriculum to medical schools and residency programs to teach motivational interviewing, health conversation skills, and cognitive behavioral therapy.
 - Incorporate these skills into every class and rotation.
 - Increase the trend towards PCMHs for practicing primary care providers to disseminate information and achieve improved compliance over time.
4. Create more effective use of technology to support collaboration between physicians and patients.

- Increase the use of EMR in all medical settings, along with patient portals to provide easy access to medical information and communication with the physician.
 - Develop technology, such as iPad applications, for interactive teaching to improve understanding of hypertension risks and increase guidelines compliance.
 - Increase use of the Internet to disseminate hypertension guidelines information to physicians.
5. Increase focus on education and health literacy for the patient.
- Focus literacy awareness materials on a visual representation of compliance guidelines rather than written words.
 - Assess patients' health literacy so appropriate materials are provided.
6. Increase cultural sensitivity and awareness by medical professionals.
- Pay greater attention to unique aspects of populations with respect to dietary differences and how they can be adapted to be healthier.
 - Develop health programs in conjunction with cultural leaders within a population.
 - Increase awareness of research that impacts populations and medication differences.
7. Increase support from the larger community to promote hypertension guidelines compliance.

- Institute laws to encourage the food industry to decrease salt and unhealthy fats in restaurant and processed food, and to provide understandable, visible food labeling to support healthy food choices.
- Provide training for physicians, nurse practitioners, or physician assistants to deal with both the physical and psychosocial aspects of health care related to needed lifestyle changes, particularly for patients with chronic disease and resistant compliance.

8. Encourage physician hospital organizations and governmental programs to support physicians and patients regarding awareness and dissemination of evidence-based hypertension guidelines.

- Support the development of PCMHs with expertise and resources.
- Develop consistent sources to establish evidence-based guidelines.

Recommendations for Further Study

The gap between treatment guidelines, prevention guidelines, clinical practice, and patient compliance is recognized as one of the major challenges facing health care providers in the task to reduce the incidence of CVD, in which hypertension plays a major role (Grover et al., 2008). This study reported barriers to hypertension compliance as cited by physicians and patients. Recommended future research includes the following:

1. Research into the complicating role of the insurance industry on the practice of medicine.
2. Further research into the definition and prevalence of *white coat syndrome*. Patient tendency may be to use this as a way to deny their high blood pressure, resulting in physicians failing to develop appropriate treatment plans.
3. Further research into hypertension, CVD, and end-stage renal disease in African Americans to investigate genetic functions of kidneys or response to medications for the purpose of improving physician understanding of hypertension in African Americans.
4. Research into the role of health literacy and ways to use technology, such as Google Body, to improve patient education and understanding of hypertension within a cultural context.
5. Research to investigate the impact of health conversations and motivational learning on lifestyle change and compliance.

Implications for Social Change

The epidemiological shift toward chronic diseases over the past 50 years means that acute care models are no longer adequate to address the health needs of the population (WHO, 2003). Managing chronic conditions, such as hypertension, requires physician/patient collaboration, patient self-management, technology for monitoring, and changes in patient lifestyle (WHO, 2003). There is evidence that patient-related factors are not the only problems in hypertension guidelines compliance. For example, physician and health system-related factors may impact compliance, quality, and outcomes, but are currently ignored (WHO, 2003).

A model of compliance resulting from my study suggests the need for a stronger collaboration between physician and patient. Although both patient and physician respondents commented on the importance of a good relationship to increase compliance, six of the seven patients did not believe such a relationship existed in practice. In addition, there is a need for increased understanding of compliance barriers related to health beliefs and self-efficacy for patient and physician. Patients expressed concern about the type of educational material they received from their physician and wanted comprehensible information tailored to their own unique needs. Including graphic materials that reflect health literacy levels in various patient populations would be an important component of my call for a focus on education and greater cultural sensitivity (See Figure 2).

Patient respondents are often conflicted about their noncompliance, yet the current health system does not provide cognitive therapy or motivational interviewing to

help them understand the beliefs and values that impact their non compliance. My model proposes professional training to understand the impact of theory on compliance. In addition, payment from insurance plans should cover preventive services, such as weight management and exercise programs, as well as longer office visits so physicians can explore barriers to compliance and address patient concerns. Increased compliance will improve health outcomes and decrease both morbidity and mortality due to hypertension in the United States.

Researcher's Experience

Upon reflecting about my experience of researching hypertension guidelines compliance with physicians and patients, several things have become apparent. First, my experience over the past 39 years in various health care fields has led to a high level of frustration with the health insurance industry. Conducting this study revealed the deeper cause of the high cost and low quality of our current health care system. I now believe these problems have been produced by the policies and practices of health insurance providers. This revelation has led me to a clearer articulation of goals for further discussions with stakeholders interested in solving our health care challenges.

Second, as I was completing the data analysis, I realized that my patient participants had described, in their own words, the components of the PCMH. My study serves to reinforce and demonstrate the importance of this transformation of primary care to a patient-centered medical care model.

Third, researchers have called for the use of theory to guide health promotion and the evaluation of compliance, however, medical practitioners have minimized the

importance of theory, stating that it had little relation to the “real world” (Murray-Johnson et al., p. 185). In research from 20-30 years ago, the importance of self-efficacy and health beliefs in compliance was discussed, yet we still do not consider it a serious dimension in treating the patient.

Fourth, I trust the effect of this research on the participants was positive. Perhaps providing a forum for them to ponder things they may have previously ignored, and hearing their own answers to my questions, gave them an opportunity to understand their hypertension guidelines resistance more fully.

Fifth, my personal bias in this study was an unwillingness to give up believing we can make health care better.

Conclusion

Despite screening, preventive measures, and new therapies, cardiovascular risk remains high. There is a potential to see a 93% increase in CVD prevalence by 2050 due to the growth in the aging population (Odden, 2011). The goal of health care is to prevent disease, relieve suffering, and prolong life (Kones, 2010). The goal of prevention, while revered, is not always evidence-based or cost effective in the eyes of many in the health care profession. As a result, the debate about whether prevention is worthwhile is raging (Kones, 2010). The goal of prevention is to delay disease and disability, optimize functionality, and contribute to general well-being. Some have argued that preventive services could increase healthcare budgets (Kones, 2010). Less than 3% of the U.S. health care costs for prevention, the impact of saving large numbers of lives through prevention has not yet been fully realized (Kones, 2010). The US can improve the return

on investment by using a judicious selection of preventive services that might yield a higher return. Controlling hypertension to levels less than 140/90 and preventing hypertension through improved lifestyle behaviors is one of those areas that will yield a high return.

The results of my qualitative study provide a meaningful theoretical model of compliance based on patient and physician interviews which integrates the pieces and creates a new whole to impact the effect of hypertension on rising CVD rates. The dissemination and awareness of evidence *and* theory, such as health beliefs and self-efficacy, must coexist to increase compliance. My new model shows that major changes need to take place in the healthcare system, specifically in regards to insurance, to mitigate administrative burden, expand coverage, and increase reimbursement to primary care physicians. My research shows that collaboration and communication between patient and physician is not as strong as physicians may think or like. My new model calls for educational formats that communicate visually and practically at a level that addresses the individual needs and congruently measures understanding and outcomes. Community and professional support are part of my new model of compliance to partner with physician and patient to improve compliance. All pieces of the whole, as presented in this research, need to be addressed to reverse the current costly trend of hypertension.

References

- Aldhous, P. (2010). Personal genetics tests prompt lifestyle changes. *New Scientist*, 208 (2786), 01. Retrieved from EBSCOhost.
- American Heart Association Heart Disease and Stroke Statistics—2008, 2009, 2010 Updates. Retrieved from www.americanheart.org
- Arguedas, J., Perez, M., Wright, J. (2009). Treatment blood pressure targets for hypertension. *Cochrane Database of Systematic Reviews*, (4). Retrieved from <http://www.cochrane.org/>
- Bailey, E. J. (2002). *African American alternative medicine: Using alternative medicine to prevent and control chronic diseases*. Westport, CT: Bergin and Garvey Greenwood publishing group.
- Bakris, G., Hill, M., Mancia, G., Steyn, K., Black, H., Pickering, T., . . . Mensah, G. (2008). Achieving blood pressure goals globally: Five core actions for health-care professionals. A worldwide call to action. *Journal of Human Hypertension*, 22(1), 63-70. doi:10.1038/sj.jhh.1002284
- Balu, S. (2009). Estimated annual direct expenditures in the United States as a result of inappropriate hypertension treatment according to national treatment guidelines. *Clinical Therapeutics*, 31(7), 1581-1594.
- Bandura, A. (1977). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Bane, C., Hughes, C. M., Cupples, M. E., & McElany, J. C. (2007). The journey to concordance for patients with hypertension: A qualitative study in primary care. *Pharmacy World and Science*, 29, 534-541.

- Becker, M. H., Maiman, L. A., Kirscht, J. P., Haefner, D. P., & Drachman, R. H. (1977). The health belief model and prediction of dietary compliance: A field experiment. *Journal of Health and Social Behavior, 18*(4), 348-366.
- Boyd, C. M., Darer, J., Boulton, C., Fried, L. P., Boulton, L., & Wu, A. W. (2005). Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: Implications for pay for performance. *Journal of the American Medical Association, 294*(6), 716-724.
- Campbell, N., Kaczorowski, J., Lewanczuk, R., Feldman, R., Poirier, L., Kwong, M., . . . Tobe, S. (2010). Canadian Hypertension Education Program (CHEP) recommendations: The scientific summary. *Canadian Journal of Cardiology, 26*(5), 236-240.
- Carter, B., Ardery, G., Dawson, J. D., James, P. A., Bergus, G. R., Doucette, W. R., . . . Xinghui, X. (2009). Physician and pharmacist collaboration to improve blood pressure control. *Archives of Internal Medicine, 169*(21), 1996-2002.
- Centre for Evidence Based Medicine, <http://www.cebm.net/index.aspx?o=1116>
- Charmaz, K. (2003). Grounded Theory. *Encyclopedia of Social Science Research Methods*. Retrieved from http://www.sage-reference.com/socialscience/Article_n381.html
- Chobanian, A. V., Bakris, B. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo, J. L., . . . Roccella, E. J. (2003). The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 Report. *Journal of the American Medical Association, 289*(19), 2560-2571.

- Corbin, J., Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*, (3rd ed.) Los Angeles: Sage.
- Creswell, J. W. (2005). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks: Sage.
- Cutcliffe, J. (2005). Adapt or adopt: Developing and transgressing the methodological boundaries of grounded theory. *Journal of Advanced Nursing*, 51(4), 421-428.
- de Meirelles, L., Mendes-Ribeiro, A., Mendes, M., da Silva, M., Ellory, J., Mann, G., & Brunini, T. (2009). Chronic exercise reduces platelet activation in hypertension: Upregulation of the l-arginine-nitric oxide pathway. *Scandinavian Journal of Medicine and Science*, 19(1), 67-74. doi: 635483581
- Docherty, A., & Sandhu, H. (2006). Student-perceived barriers and facilitators to e-learning in continuing professional development in primary care. *Education for Primary Care*, 17(4), 343-353. Retrieved from http://www.radcliffe-oxford.com/journals/j02_education_for_primary_care
- Dorland's Illustrated Medical Dictionary (30th ed.) (2003). Philadelphia: Saunders.
- Dusing, R. (2006). Overcoming barriers to effective blood pressure control in patients with hypertension. *Current Medical Research and Opinion*, 22, 1545-1554.
- Egan, B., Zhao, Y., & Axon, R. (2010). US trends in prevalence, awareness, treatment, and control of hypertension, 1988-2008. *JAMA, Journal of the American Medical Association*, 303(20), 2043-2050.

- Farmer A. P., Légaré, F., Turcot, L., Grimshaw, J., Harvey, E., McGowan J., Wolf, F. M., (2008). Printed educational materials: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2008, Issue 3. Art. No.: CD004398. doi: 10.1002/14651858.CD004398.pub2
- Fenty-Stewart, N., Park, J., Roth, S., Hagberg, J., Basu, S., Ferrell, R., & Brown, M. (2009). Independent and combined influence of AGTR1 variants and aerobic exercise on oxidative stress in hypertensives. *Blood Pressure*, 18(4), 204-212.
- Fischer, M. A., & Avorn, J. (2004). Economic implications of evidence-based prescribing for hypertension: Can better care cost less? *Journal of the American Medical Association*, 291(15), 1850-1856.
- Forman, J., Stampfer, M., & Curhan, G., (2009). Diet and lifestyle risk factors associated with incident hypertension in women. *Journal of the American Medical Association*, 302, 401-411.
- Freed, G. L., Pathman, D. E., Konrad, T. R., Freeman, V. A., Clark, S. J. (1998). Adopting immunization recommendations: A new dissemination model. *Maternal and Child Health Journal*, 2(4), 231.
- Gaby, A. (2005). Adverse effects of dietary fructose. *Alternative Medicine Review*, 10(4), 294-306.
- Georg, G., Séroussi, B., & Bouard, J. (2005). Extending the GEM model to support knowledge extraction from textual guidelines. *International Journal of Medical Informatics*, 74, 2-4.

- Germino, F. W. (2009). JNC 8: Expectations, challenges, and wishes—A primary care perspective. *The Journal of Clinical Hypertension*, *11*(10), 573-576.
doi: 10.1111/j.1751-7176.2009.00157.x
- Glanz, K. & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health*, *31*(1), 399-418.
- Greene, R. A., Beckman, H. B., & Mahoney, T. (2008). Beyond the efficacy index: Finding a better way to reduce overuse and increase efficiency in physician care. *Health Affairs*, *27*, 250-259.
- Grover, S., Lowensteyn, I., Joseph, L., Kaouache, M., Marchand, S., Coupal, L., & Boudreau, G. (2009). Discussing coronary risk with patients to improve blood pressure treatment: Secondary results from the CHECK-UP Study. *Journal of General Internal Medicine*, *24*(1), 33-39.
- Guba, E., & Lincoln, Y. (1988). *Qualitative approaches to evaluation in education: The silent scientific revolution*. New York: Praeger.
- Haafkens, J., Beune, E., Moll van Charante, E., & Agyemang, C. (2009). A cluster-randomized controlled trial evaluating the effect of culturally-appropriate hypertension education among Afro-Surinamese and Ghanaian patients in Dutch general practice: Study protocol. *BMC Health Services Research*, 9193.
doi:10.1186/1472-6963-9-193
- Hausman, A. (2001). Taking your medicine: Relational steps to improving patient compliance. *Health Marketing Quarterly*, *19*(2), 49.

Healthy People (2020) retrieved from website <http://healthypeople.gov/2020/default.aspx>

Heisler, M. (2008). Actively engaging patients in treatment decision making and monitoring as a strategy to improve hypertension outcomes in diabetes mellitus. *American Heart Association, Circulation*. 117,1355-1357. doi: 10.1161/circulationaha.108.76514

Heneghan, C., Perera, R., Mant, D., & Glasziou, P. (2007). Hypertension guideline recommendations in general practice: Awareness, agreement, adoption, and adherence. *British Journal of General Practice*, 57(545), 948-952.

Hodgkinson, J., Mant, J., Martin, U., Guo, B., Hobbs, R., Deeks, J., Heneghan, C., Roberts, N., McManus, R. (2011). Relative effectiveness of clinic and home blood pressure monitoring in diagnosis of hypertension: Systematic review. *British Medical Journal*, 342:d3621. doi: 10.1136/bmj.d3621

Holland, N., Segraves, D., Nnadi, V., Belletti, V. O., Wogen, J., & Arcona, S. (2008). Identifying barriers to hypertension care: Implications for quality improvement initiatives. *Disease Management*, 11(2), 71-77.

Hong, T. B., Oddone, E. Z., Dudley, T. K., & Bosworth, H. B. (2006). Medication barriers and anti-hypertensive medication adherence: The moderating role of locus of control. *Psychology, Health and Medicine*, 11(1), 20-28.

Horne, E., & Gordon, P. (2009). Taking aim at hypertensive crises. *Nursing*, 39(3), 48-53.

Houston, T., Allison, J., Sussman, M., Horn, W., Holt, C., Trobaugh, J., . . . Hullett, S.

(2011). Culturally appropriate storytelling to improve blood pressure: A randomized trial. *Annals of Internal Medicine*, *154*(2), 77-84.

Hunt, J. S., Siemienczuk, J., Pape, G., Rozenfeld, Y., MacKay, J., LaBlanc, B. H., &

Touchette, D. (2008). A randomized controlled trial of team-based care: Impact of physician-pharmacist collaboration on uncontrolled hypertension. *Journal of General Internal Medicine*, *231*(12), 1966-1972.

Institute of Medicine (2010). *A population-based policy and systems change approach to prevent and control hypertension*. Retrieved from

<http://www.nap.edu/catalog/12819.html>

Johnson, R., Feig, D., Nakagawa, T., Sanchez-Lozada, G., Rodriguez-Iturbe, B. (2009).

Pathogenesis of essential hypertension: Historical paradigms and modern insights. *Journal of Hypertension*, *26*(3), 381-391.

Kawasaki, L., Muntner, P., Hyre, A., Hampton, K., & DeSalvo, K. (2007). Willingness to attend group visits for hypertension treatment. *American Journal of Managed Care*, *13*(5), 257-262.

Kirkendoll, K., Clark, P., Grossniklaus, D., Igho-Pemu, P., Mullis, R., & Dunbar, S.

(2010). Metabolic syndrome in African Americans: Views on making lifestyle changes. *Journal of Transcultural Nursing*, *21*(2), 104-113.

doi:10.1177/1043659609357636

- Kones, R. (2010). Is prevention a fantasy, or the function of medicine? A panoramic view of recent data, status, and a direction in cardiovascular prevention. *Therapeutic Advances in Cardiovascular Disease*, 5(61), 61-81.
doi:10.1177/1753944710391350
- Kressin, N. R., Wang, F., Long, J., Bokhour, B. G., Orner, M. B., Rothendler, J., . . . Kroupa, L. P. (2007). Hypertensive patients' race, health beliefs, process of care, and medication adherence. *Journal of General Internal Medicine*, 22(6), 768-774.
- Kyngäs, H., & Lahdenperä, T. (1999). Compliance of patients with hypertension and associated factors. *Journal Of Advanced Nursing*, 29(4), 832-839.
- Lachaine, J., Petrella, R., Merikle, E., Ali, F. (2008). Choices, persistence and adherence to antihypertensive agents: Evidence from RAMQ data. *Canadian Journal of Cardiology*, 24(4), 269-273.
- Mazzaglia, G., Alacqua, M., Filippi, A., Sessa, E., Immordino, V., Borghi, C., . . . Mantovani, L. G. (2009). Adherence to hypertensive medications and cardiovascular morbidity among newly diagnosed hypertensive patients. *Journal of the American Heart Association, Circulation*, 108, 1598-1606.
- Medves, J., Godfrey, C., Turner, C., Paterson, M., Harrison, M., MacKenzie, L., & Durando, P. (2009). Practice guideline dissemination and implementation strategies for healthcare teams and team-based practice: A systematic review. *Systematic Reviews-Joanna Briggs Institute*, 450-491.
doi: 10.1111/j.1365-2648.2011.05692.x

- Middleton, J. (2009). A proposed new model of hypertensive treatment behavior in African Americans. *Journal of the National Medical Association, 101*, 12-7.
- Millett, C., Gray, J., Wall, M., & Majeed, A. (2008). Ethnic disparities in coronary artery disease management and pay for performance in the UK. *Journal of Internal Medicine, 24*(1), 8-13.
- Mitka, M. (2007). DASH diet and hypertension. *Journal of the American Medical Association, 298*, 164-165.
- Mooney, B., & Boyle, A. (2011, May). Power to the patient. *Medical Economics, S12-S14*. doi: 2432926071
- Morisky, D., Ang, A., Krousel-Wood, M., Ward, H. J. (2009). Predictive validity of a medication adherence measure in an outpatient setting. *Journal of Clinical Hypertension, 10*(5), 358-354.
- Mosby's Medical Dictionary: oxidative stress. *Mosby's Medical Dictionary, 8th edition*. (2009). Retrieved <http://medical-dictionary.thefreedictionary.com/oxidative+stress>
- Murray-Johnson, L., Witte, K., Boulay, M., Figueroa, M., Storey, D., & Tweedie, I. (2006). Using health education theories to explain behavior change: A cross-country analysis. *International Quarterly of Community Health Education, 25*, (1-2), 185-207. Document ID: 1241433461
- NCQA (2011) *New NCQA standards take patient-centered medical homes to the next level*. Retrieved from <http://www.ncqa.org/>

- Nielsen-Bohlman, L., Panzer, A. M., & Kindig, D. A., (Eds.) (2004). *Health literacy: A prescription to end confusion*. Washington, DC: National Academies Press.
- Odden, M. C., Coxson, P. G., Moran, A., Lightwood, J. E., Goldman, L., Bibbins-Domingo, K. (2011). The Impact of the aging population on coronary heart disease in the United States. *The American Journal of Medicine*, *124*, 827-833. doi: 10.1016/j.amjmed.2011.04.010)
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, California: Sage.
- Palmer, S. (2011). The lowdown on sodium in your diet. *Environmental Nutrition*, *34*(2), 1-4.
- Perlow, E. (2008). Accessibility: Global gateway to health literacy. *Health Promotion Practice*. doi: 10.1177/1524839908321942
- Pickering, T. G. (2004). Hypertension in Hispanics. *Journal of Clinical Hypertension*, *6*(5), 279-282.
- Pierdomenico, S. D, Lapenna, D., Di Mascio, R., & Cuccurullo, F. (2008). Short and long-term risk of cardiovascular events in white-coat hypertension. *Journal of Human Hypertension*, *22*, 408-414.
- Roger, V. L. (2009). Lifestyle and cardiovascular health: Individual and societal choices. *Journal of the American Medical Association*, *302*(4), 437-439.
- Rosenstock, I. (1974). Historical origins of the health belief model. *Health Education Monographs*, *2*(4), 328-333.

- Scherger, J. E. (2011). Why you should outsource your weight loss treatment. *Internal Medicine Alert*, 33(18), 139-141. Retrieved from EBSCOhost.
- Schroeder, K., Fahey, T., Ebrahm, S. (2004). Interventions for improving adherence to treatment in patients with high blood pressure in ambulatory settings. *Cochrane Database of Systematic Reviews*, 2004, Issue 3. Art. No.: CD004804. doi: 10.1002/14651858.CD004804
- Serumaga, B., Ross-Degnan, D., Avery, A., Elliott, R., Majumdar, S., Zhang, F., & Soumerai, S. (2011). Effect of pay for performance on the management and outcomes of hypertension in the United Kingdom: Interrupted time series study. *British Medical Journal*, 342(7792), 322. doi: 10.1136/bmj.d108
- Shaya, F., Du, D., Gbarayor, C., Frech-Tamas, F., Lau, H., & Weir, M. (2009). Predictors of compliance with antihypertensive therapy in a high-risk medicaid population. *Journal of The National Medical Association*, 101(1), 34-39.
- Simões, G., Moreira, S., Kushnick, M., Simões, H., & Campbell, C. (2010). Postresistance exercise blood pressure reduction is influenced by exercise intensity in type-2 diabetic and nondiabetic individuals. *Journal of Strength and Conditioning Research*, 24(5), 1277-84. doi: 204262694)
- Sisson, S., Rastegar, D., Rice, T., Prokopowicz, G., & Hughes, M. (2006). Physician familiarity with diagnosis and management of hypertension according to JNC 7 guidelines. *Journal of Clinical Hypertension*, 8(5), 344-350.

- Steinman, M., Fischer, M., Shlipak, M., Bosworth, H., Oddone, E., Hoffman, B., . . . Goldstein, M. K. (2004). Clinician awareness of adherence to hypertension guidelines. *The American Journal of Medicine*, *117*(10), 747-754.
- Svetkey, L. P., Pollak, K. I., Yancy, W. S., Dolor, R. J., Batch, B., Samsa, G., . . . Lin, P-H. (2009). Hypertension improvement project: Randomized trial of quality improvement for physicians and lifestyle modification for patients. *Hypertension*, *54* (6), 1226-1233.
- Thorpe, K. (2011, September 8). PFCD commends health affairs for confronting costly chronic diseases. Retrieved from <http://www.fightchronicdisease.org/media-center/releases/pfcd-commends-health-affairs-confronting-costly-chronic-diseases>.
- Tucker, A., Vogel, R., Lincoln, A., Dunn, R., Ahrensfield, D., Allen T., . . . Yates, A. P. (2009). Prevalence of cardiovascular disease risk factors among National Football League players. *Journal of the American Medical Association*, *301*(20), 2111-2119.
- Ulin, P., Robinson, E., Tolley, E. (2005). *Qualitative methods in public health: A field guide for applied research*. San Francisco: Jossey-Bass.
- Walpole, B., Dettmer, E., Morrongiello, B., McCrindle, B., & Hamilton, J. (2011). Motivational interviewing as an intervention to increase adolescent self-efficacy and promote weight loss: Methodology and design. *BMC Public Health*, *11*(1), 459-467. doi:10.1186/1471-2458-11-459

- Wen, C., Wai, J., Tsai, M., Yang, Y., Cheng, T., Lee, M., . . . Wu, X. (2011). Minimum amount of physical activity for reduced mortality and extended life expectancy: A prospective cohort study. *Lancet*, *378*(9798), 1244-1253.
- Wexler, R., Elton, T., Pleister, A., & Feldman, D. (2009). Barriers to blood pressure control as reported by African American patients. *Journal of the National Medical Association*, *101*(6), 597-603.
- World Health Organization, (2003). *Adherence to long-term therapies, evidence for action*. Retrieved from http://www.who.int/chp/knowledge/publications/adherence_introduction.pdf
- Yuan, C., Nembhard, I., Stern, A., Brish, J., Krumhol, H., & Bradley, E. (2010). Blueprint for the dissemination of evidence-based practices in health care. *Commonwealth Fund Issue Brief*, *86*, 1-16.

Appendix A: Protocol Submission Form

Adventist Midwest Health Research Review Board

Investigator:**Department/Section:****Office Address:****Phone:****Email:****Co-Investigators:**

Co-investigators listed may perform the procedures indicated on this protocol. They may NOT amend the protocol.

Protocol ID#**Title of Protocol:****Investigator's Assurance**

I certify that the information provided in this application is complete and correct.

I understand that as Principal Investigator, I have ultimate responsibility for the protection of the rights and welfare of human subjects, conduct of the study, and the ethical performance of the project. I agree to comply with all AHS MWR policies and procedures, as well as, with all applicable federal laws regarding the protection of human subjects in research, including, but not limited to the following:

- The project will be performed by qualified personnel according to the AHS MWR IRB certified protocol
- No human being will be involved as a research subject unless legal informed consent of the subjects has been obtained.
- Changes or modifications in the research project and/or consent form during the period for which IRB approval has been granted can not be initiated without prior IRB review and approval, except where necessary to eliminate appropriate immediate hazards to the subjects.
- The informed consent documents signed by human research subjects will be placed in a repository approved by the IRB and available for review by IRB.
- Progress Reports on the research will be submitted as often as requested and in the manner prescribed by the IRB. Adverse events (serious and unexpected) will be reported to the AHS MWR IRB promptly.
- The IRB shall have the authority to suspend or terminate approval of the research project if it is not being conducted in accordance with the IRB's decision, conditions, and requirements.

I further certify that the proposed research is not currently underway and will not begin until IRB approval has been obtained.

 Principal Investigator

Date

Application Attachments (check all that apply):

- Consent form(s)
 Test instruments (ex: questionnaires, quality of life surveys, etc.)
 Investigator brochure (for drug or device studies)
 Advertisements
 Additional information PI considers important for review by the IRB.

Protocol Funding

1. Describe compensation, reimbursement or funding for participation in this project. If AHSMR institutions are involved, attach copy of the agreement. If AHSMR institutions are not involved, provide remuneration clause from agreement with sponsor.

2. For industry-sponsored projects, provide contact for invoicing IRB review fee:

Protocol Implementation Needs

1. Where will research take place (check all that apply):

- Adventist Hinsdale Hospital
 Adventist La Grange Memorial Hospital
 Adventist GlenOaks Hospital
 Adventist Bolingbrook Hospital
 Health Care at Home
 St. Thomas Hospice
 Adventist Health Partners
 Private Office(s) (specify all locations: _____)
 Other (specify): _____

2. Status of Protocol: ___ New ___ Amendments # ___ are included with new submission.
Version date: _____

3. Please indicate if any of the following AHS entities will be affected (special needs, precautions, impact of resources, available equipment, etc.) by the implementation of this study. Indicate if any of the following departments at any of the AHS facilities will be impacted by the implementation of this protocol:

<input type="checkbox"/> Anesthesia/Pain Management	<input type="checkbox"/> Nursing Services
<input type="checkbox"/> Ambulatory Care	<input type="checkbox"/> Nutrition Services
<input type="checkbox"/> Breast Care Center	<input type="checkbox"/> Pharmacy
<input type="checkbox"/> Cardiology	<input type="checkbox"/> Radiation Oncology
<input type="checkbox"/> Cardiac Cath Lab	<input type="checkbox"/> Radiology
<input type="checkbox"/> Emergency Room	<input type="checkbox"/> Rehabilitative Services
<input type="checkbox"/> Employee Health	<input type="checkbox"/> Respiratory Care Services
<input type="checkbox"/> Finance / Patient Business Office	<input type="checkbox"/> Surgical Services (Operating Room; Same Day Surgery; Recovery Room)
<input type="checkbox"/> Health Information Management	<input type="checkbox"/> Women's and Children's Services
<input type="checkbox"/> GI Lab (Gastroenterology)	<input type="checkbox"/> Other (specify) _____
<input type="checkbox"/> Genetic Risk Assessment Service	
<input type="checkbox"/> Information Services	
<input type="checkbox"/> Laboratory/Pathology	
<input type="checkbox"/> Marketing	

- Attach a Department Review Form (Appendix A) for each department checked.

Study Description

1. Project involves the use of (check all pertinent items)

Audio-, Video-taping
 Behavioral-Social
 Deception of Subjects
 Existing data; documents, records, pathological specimens or diagnostic specimens
 Genetic Testing
 Human cell, tissue, and/or DNA banking
 Non-approved Use: Approved Drug
 Non-approved Use: Approved Device
 Non-therapeutic Research
 Placebo
 Randomization
 Radiation and/or radio-active agents
 Investigational Device
 Investigational Drugs; biologics
 Surveys/questionnaires/interviews
 Other: _____

2. Protocol Contents: Check areas contained in protocol and indicate the pages.

_____ Purpose of investigation Page _____

_____ Rationale for performance of this research	Page _____
_____ Procedures	Page _____
_____ Statistical/Data analysis	Page _____
_____ Inclusion criteria	Page _____
_____ Exclusion criteria	Page _____
_____ Benefits of participation	Page _____
_____ Potential risks and precautions	Page _____
_____ Data Safety Monitoring Board/Committee	Page _____
_____ Alternative procedures	Page _____

3. Describe which procedures are NOT part of the ordinary management of the subject's disease, disorder or condition:

Who will pay for these?

4. This study involves the use of an Investigational New Drug (IND): _____ Yes _____ No

If Yes, complete 5a through 5f:

- a. Drug Name:
- b. IND#
- c. Company:
- d. _____ Phase I _____ Phase II _____ Phase III
- e. Indicate what agents are supplied for this study:
- f. Are there any special precautions needed for the processing (storing, dispensing, preparation, handling, stability, administration, timing or insuring) of therapeutic interventions?
 ___ Yes ___ No

If yes, please explain:

5. This study involves the use of an Investigational Device Exemption (IDE): _____ Yes _____ No

If yes, complete 6a through 6i:

- a. Device Name:
- b. IDE#:

- c. Company:
- d. Is this a significant risk or non-significant risk device?
 ___ Significant Risk (SR)
 ___ Non-significant Risk (NSR)
- e. Is this device paid for and supplied by the company? ___ Yes ___ No
- f. If this device is not supplied for by the company, who will pay for the device?
 ___ Company ___ Patient/Patient's Insurance Carrier
- g. What is the cost of the device? \$ _____
- h. Is there a reimbursement assistance program available? _____
- i. Are there any special precautions needed for the processing (storing, dispensing, preparation, handling, stability, administration, timing or insuring) of therapeutic interventions?
 ___ Yes ___ No
- If yes, please explain:

Subject Population

- Number of Subjects to be enrolled locally: _____
- Number of subjects to be enrolled in study nationally: _____
- Types of subjects anticipated (check all that apply)
 Minors* Prisoners* Pregnant Women* Fetus/fetal tissue*
 People who will have difficulty in providing informed consent*

**Provide rationale for using special populations, as those listed above are considered "vulnerable" or require special consideration by the federal regulatory agencies.*

Recruitment Procedures

- Describe how subjects will be identified, recruited and chosen. Attach all recruitment information (advertisements, bulletin board notices, and recruitment letters for all types of media –printed, radio, electronic, TV, or Internet).

2. Will there be an opportunity for potential participants to take consent document home to discuss with family members and/or friends?

3. What methods will be utilized to educate and increase participant's understanding of research project and rights as a participant. (check all that apply)

- Video Provide brochure
 Conference patient and family member Arrange time for follow-up discussion
 Other describe: _____

4. List all healthcare professionals who will be involved in the consent process with the patients (discussing the study and involved procedures):

Names:

5. Will there be payment to participants? YES _____ NO _____
- a) If yes, how much: \$ _____
- b) Before or after the study? _____
- c) What is the plan for payment to participant if the participant withdraws from the study early? This information must be included in the consent document.

Appendix B: Departmental Review Form

Adventist Midwest Health RRB

Requesting Review from Department:

Investigator:

Protocol #:

Title:

Can all protocol requirements specific to your department be met?

YES_____ NO_____

If NO, please answer the following (use additional pages, if necessary).

A. List which specific requirement(s) cannot be met.

B. What additional resources (equipment, advanced notification, inventory, staff support, etc.) would you require to support this protocol?

C. Describe the financial impact this project will have on your department:

D. Please list any other concerns:

Reviewer's Signature: _____ Date: _____

Title: _____ Department: _____

Please return this form to Marcia Bingham, Cancer Data Management,
Fax: 708-245-5750

Appendix C: Physician Letter

Physician and Patient Reported Barriers to Hypertension Guidelines Compliance:

Developing a Synthesized Model of Compliance.

Dear [physician name],

My name is Pamela Ballou-Nelson, I am the Clinical Quality Director for the Adventist Health Network PHO and I am a doctoral candidate from the School of Public Health, Walden University, Minnesota. I am conducting a research study as part of the requirements of my degree in public health, and I would like to invite you to participate.

I am studying the physician-reported barriers to hypertension guidelines compliance compared with the patients' perspectives of barriers to hypertension guidelines compliance. I consider your experience and opinions on this topic as valuable to add to the current body of knowledge on hypertension compliance. If you decide to participate, you will be asked to meet with me for a maximum of two interviews, about your views and opinions on hypertension guidelines compliance.

In particular, I will ask you questions in regard to how you might help your patients improve compliance to suggested hypertension guidelines, and what you see as barriers to hypertension guidelines compliance, such as medication, lifestyle changes, and the physician/patient relationship. The meetings will take place at a mutually agreed-upon time at your office, and should last about 75 minutes each. The interviews will be audio-taped so I can reflect on and accurately report what is discussed. Myself and one other member of my research team will review the tapes for accuracy and verification of the analysis. The tapes will then be destroyed. The tapes will be coded so the only one that will know the identity of the participants will be me, the researcher.

Participation is confidential. Study information will be kept in a secure, locked location in my office. The results of the study may be published or presented at professional meetings, but your identity will not be revealed, which means that no one will know what your responses were. Information you share will never be identified to your patients or any other member of your office or the health-care system. Taking part in the study is your decision. You may discontinue your participation in the study at any time or decide not to answer any questions that make you uncomfortable.

You will receive a \$50.00 gift card per interview to compensate you for your time. If you withdraw from the study prior to the conclusion, you will still be compensated in this way.

I will be happy to answer any questions you have about the study. You may contact me at xxx-xxx-xxxx or e-mail me at pam_nelson@sbcglobal.net. You can also contact my faculty advisor, Dr. Morton Wagenfeld at morton.wagenfeld@waldenu.edu, if you have study-related questions or problems. For questions about your rights as a research participant, please contact the research department at Walden University, research@waldenu.edu.

Thank you for your consideration. I will call you by [insert date] to see whether you are willing to participate. Or you may call me with your decision at xxx-xxx-xxxx or e-mail pam_nelson@sbcglobal.net

With kind regards,

Pamela Ballou-Nelson

Appendix D: Patient Letter

Physician and Patient Reported Barriers to Hypertension Guidelines Compliance:

Developing a Synthesized Model of Compliance.

Dear [patient name],

My name is Pamela Ballou-Nelson, I am the Clinical Quality Director for the Adventist Health Network PHO and I am a doctoral candidate from the School of Public Health, Walden University, Minnesota. I am conducting a research study as part of the requirements of my degree in public health, and I would like to invite you to participate.

I am studying the patient-reported barriers to hypertension guidelines compliance compared with the physician perspective of barriers to hypertension guideline compliance. You were selected because you have been diagnosed with hypertension and I value your opinions and experience controlling your blood pressure. If you decide to participate, you will be asked to meet with me for a maximum of two interviews, about your views and opinions on hypertension guidelines compliance.

In particular, you will be asked questions having to do with how you, with the help of your physician, might improve compliance to suggested hypertension guidelines, and what you see as barriers to hypertension guidelines compliance, such as medication, lifestyle changes, and the physician/patient relationship. The meetings will take place at a mutually agreed-upon time and place, and should last about 75 minutes each. The interviews will be audio-taped so I can reflect on and accurately report what is discussed. Myself and one other member of my research team will review the tapes for accuracy and verification of the analysis. The tapes will then be destroyed. The tapes will be coded so the only one that will know the identity of the participants will be me, as the researcher.

Participation is confidential. Study information will be kept in a secure, locked location in my office. The results of the study may be published or presented at professional meetings, but your identity will not be revealed and your responses will not be associated with your identity. Information you share will never be provided to your physician or any other member of your physician's office. Taking part in the study is entirely your own decision and will have no effect on your medical care. You may discontinue your participation at any time or decide not to answer any questions that make you uncomfortable.

You will receive a \$25.00 gift card per interview to compensate you for your time. If you withdraw from the study prior to its conclusion, you will still be compensated in this way.

I will be happy to answer any questions you have about the study. You may contact me at xxx-xxx-xxxx or e-mail me at pam_nelson@sbcglobal.net. You can also contact my faculty advisor at Dr. Morton Wagenfeld at morton.wagenfeld@waldenu.edu, if you have study-related questions or problems. For questions about your rights as a research participant, please contact the research department at Walden University at research@walden.edu.

Thank you for your consideration. You may call me with your decision or e-mail pam_nelson@sbcglobal.net

With kind regards,

Pamela Ballou-Nelson

Appendix E: Confidentiality Agreement

Name of Signer: _____

During the course of my activity in collecting data for this research: “Physician and Patient Barriers to Hypertension Guidelines Compliance: Developing a Synthesized Model of Compliance,” I will have access to information which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this confidentiality agreement, I acknowledge and agree that:

- I will not disclose or discuss any confidential information with others, including friends or family.
- I will not in any way divulge, copy, release, sell, loan, alter, or destroy any confidential information except as properly authorized.
- I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant’s name is not used.
- I will not make any unauthorized transmissions, inquiries, modification, or purging of confidential information.
- I agree that my obligations under this agreement will continue after termination of the research that I will perform.
- I understand that violation of this agreement will have legal implications.

- I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.
- Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signature: _____ Date: _____
Pam Ballou-Nelson

Appendix F: Physician Consent Form

You are invited to take part in a research study of hypertension guidelines compliance: perceptions of barriers to compliance. You were chosen for the study because you are a Family Medicine or Internal Medicine physician treating hypertension patients. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

Pamela Ballou-Nelson, a doctoral student at Walden University, is conducting this research. She is also the Clinical Quality Director for Adventist Health Network.

Background Information:

The purpose of this study is to gain a better understanding of patient and physician perceptions to determine a theory or model of hypertension guidelines compliance. Your patients and the Adventist Health Network will not be notified that you are participating in this study and all information you share will be confidential.

Procedures:

If you agree to be in this study:

- You will be asked to participate in a taped interview with me for 75 minutes.
- You may also be asked to participate in a second interview for clarification or additional questions, to take no longer than 75 minutes.
- Questions will relate to knowledge and implementation of published hypertension guidelines, demographic information, experiences, opinions

and feelings about collaboration with your patients to improve hypertension guidelines compliance.

- The interview will be taped without using any personal identification (i.e., your name).

Voluntary Nature of the Study:

Your participation in this study is voluntary. No one at Walden University, or Adventist Health Network, will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during the study. If you feel stressed during the study, you may stop at any time. You may skip any questions that you feel are too personal.

Risks and Benefits of Being in the Study:

Benefits include compensation and the opportunity to contribute to ideas and suggestions for ways to improve the doctor-patient relationship and develop new models of care for individuals with hypertension. Risks for being in the study are minimal but might include discovering feelings of which you were not aware prior to the interview.

Compensation:

You will be given a gift card worth \$50.00 for each interview.

Confidentiality:

Any information you provide will be kept confidential. I will not use your information for any purposes outside of this research project. Also, I will not include your name or any other identifying information in any reports of the study.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact me at 630-294-1072 or e-mail, pam_nelson@sbcglobal.net. To talk privately about your rights as a participant, call Dr. Leilani Endicott, the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. This study has been approved by the Institutional Review Board of Walden University, and has been assigned an approval number **10-26-10-0299360**, which expires on **October 25, 2011**. I will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

Participant's Written or Electronic* Signature

Researcher's Written or Electronic* Signature

The Uniform Electronic Transactions Act regulates the use of electronic signatures. Legally, an electronic signature can be the person's typed name, their email address, or any other identifying marker. An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically.

Appendix G: Patient Consent Form

You are invited to take part in a research study of hypertension guidelines compliance and perceptions of barriers to compliance. You were chosen for the study because you have a diagnosis of hypertension. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

Pamela Ballou-Nelson, a doctoral student at Walden University, is conducting this research. She is also the Clinical Quality Director for Adventist Health Network.

Background Information:

The purpose of this study is to gain a better understanding of patient and physician perceptions to determine a theory or model of hypertension guidelines compliance. Please note that your physician, other patients, or anyone in the health-care system will not know you are participating in this study. All the information you share will be kept strictly confidential.

Procedures:

If you agree to be in this study:

- You will be asked to participate in a taped interview with me, lasting 75 minutes.
- You may be asked to participate in a second, follow-up interview for clarification or additional questions. This second interview will last no longer than 75 minutes.

- Interview questions will relate to your knowledge of hypertension, your personal experiences, opinions, and feelings about your hypertension control and working with your physician(s). There will also be questions regarding demographic information.
- Interviews will be taped without using any personal identification (i.e., your name will not be associated with the taped interview).

Voluntary Nature of the Study:

Your participation in this study is voluntary, and your decision to participate or not is completely your own. No one at Walden University, Adventist Health Network, or your physician's office will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during the study. If you feel stressed during the study you may stop at any time. You may skip any questions that you feel are too personal or that make you uncomfortable.

Risks and Benefits of Participating in the Study:

Benefits include compensation and the opportunity to contribute your ideas and suggestions for ways to improve the doctor-patient relationship and develop new models of care for individuals with hypertension. Risks of being in the study are minimal but might include discovering feelings of which you were not aware prior to the interview.

Compensation:

You will be given a gift card worth \$25.00 for each interview.

Confidentiality:

Any information you provide will be kept confidential. I will not use your information for any purposes outside this research project. Also, I will not include your name or any other identifying information in any reports of the study.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact me at 630-294-1072 or e-mail, pam_nelson@sbcglobal.net. To talk privately about your rights as a participant, call Dr. Leilani Endicott, the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. This study has been approved by the Institutional Review Board of Walden University, and has been assigned an approval number **10-26-10-0299360**, which expires on **October 25, 2011**. I will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

Participant's Written or Electronic* Signature

Researcher's Written or Electronic* Signature

The Uniform Electronic Transactions Act regulates electronic signatures. Legally, an electronic signature can be the person's typed name, their email address, or any other identifying marker. An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically.

Appendix H: Sample Interview Transcript, Patient

Patient #5 Interview

Questionnaire #B518SMF11

Folder B file # 8

1. Gender: Female
2. Education: Post Bachelors degree
3. Employed: No
4. Age: >50
5. Race: African American
6. Economic status: >\$25,000; Insurance status: Insured
7. Blood pressure past two visits at or over 140/102
Office 140/102
Home Does not do it at home. Maybe at Walgreens, usually “normal”
8. One of the below factors present?
Smoking: No
Weight: elevated BMI

QUESTIONS:

I: What is your current blood pressure?

P: 140/102 at the doctor’s office.

I: Does your doctor ask you to take it at home?

P: Yes I did at first but I don’t anymore.

I: Are you on B/P medication?

P: Yes one.

I: When you took it [blood pressure] at home what was it?

P: Normal.

I: Did you ever take it [blood pressure cuff] to office for calibration with office?

P: Not the office but the hospital had a program to bring in your blood pressure cuff and I did that it was about the same.

I: How does your lifestyle, such as stress, diet/salt intake, weight, exercise including medication compliance effect your blood pressure?

P: Yes I did a stress test and the administrator said you should exercise everyday your blood pressure goes down with exercise.

I: So are you on an exercise program daily?

P: Three –five times a week, I walk, elliptical Zoomba, I dance and some weight training.

I: So you don't take the blood pressure at home to see the impact versus the office especially after exercising?

P: Correct.

I: How about salt in your diet do you intentionally track that?

P: No.

I: So you don't know how salt impacts the blood pressure?

P: No except if my hands are swollen I say too much salt yesterday.

I: So you decrease it [salt] on your own the next day?

P: Yes.

I: How about your weight does that impact blood pressure, if you lose weight?

P: No it doesn't seem that weights lose impacted it.

I: Do you have family members that have high blood pressure?

P: Yes, mother, father, sisters, brother, aunts, uncles.

I: How old were they when they developed hypertension?

P: In their 40's.

I: How old were you?

P: In the 40's.

I: Any family member with heart attack or stroke?

- P: Yes my dad he was 67.
- I: Was his blood pressure controlled?
- P: Yes he was controlled by medicine.
- I: How often do you take your medication, every day?
- P: Yes.
- I: So you don't miss any days?
- P: No only once in awhile.
- I: Have you had any side effects from the medicine?
- P: No, oh excuse me I mean yes, I am going to the doctor tomorrow because I get a very swollen lip I have been in to the doctor when it happens but she thought it may be a spider bite, but it happened to a friend and she said it was due to her blood pressure medicine because she said anything that ends in "pril" can cause that side effect in African Americans so I am going tomorrow to get my blood pressure medicine changed.
- I: Very interesting; does your doctor ever refer to hypertension or medications in light of your ethnicity/African American?
- P: She says with your history.
- I: But never equates your hypertension or medication concerns to ethnicity?
- P: No she says only based on your history.
- I: Give me example of your food intake on a typical day?
- P: Oatmeal raisins almonds, lunch left over from night before protein vegetable, dinner protein, vegetable, starch, desert.
- I: Has your doctor ever said to you this is the diet I want you to follow for hypertension?
- P: No.
- I: Has your doctor ever talked to you about salt in your diet and how much salt to have on a daily basis?
- P: No.

- I: Has your doctor ever explained to you exactly what hypertension really is?
P: No.
- I: Has your doctor ever explained to you what type of exercise program to follow for hypertension?
P: No.
- I: Has your doctor ever explained to you what kind of impact hypertension has on your body and organs, the outcome of uncontrolled hypertension might be?
P: Minimally, she says I don't want you to have a stroke with your blood pressure, I want you to lose weight, and exercise.
- I: But doesn't tell you anymore than you "need to lose weight"?
P: Correct.
- I: Does your doctor tell you what she wants your blood pressure to be?
P: No, not any specific numbers.
- I: Do you have any other conditions like diabetes that impact hypertension?
P: Yes I am borderline diabetic?
- I: Does she say because of borderline diabetes I want your blood pressure to be even lower?
P: No; No never.
- I: In your opinion whose responsibility is it to control your hypertension, yours, your doctor or both?
P: Mine absolutely.
- I: What role should the doctor play?
P: Medication management, education, information, guidance.
- I: What role should your insurance company play in compliance, if any?
P: Paying for it.

- I: Pay for what?
- P: Medication, office visits.
- I: Should they pay for more, a diet plan, an exercise program?
- P: I would love it I would love for them to promote these things, to pay for exercise program and pay for nutritional information.
- I: Has your doctor ever offered to send you to dietician?
- P: No, I go to Weight Watchers.
- I: Wouldn't it be nice to have insurance company pay for Weight Watchers?
- P: Yes.
- I: So you don't have a problem with insurance company paying for these things, like weight management, exercise?
- P: No and I would take advantage of these things if they paid for it.
- I: This would motivate you?
- P: Yes absolutely!
- I: What about other people would they be motivated if insurance company would pay for these items?
- P: Yes I think they would take advantage of it.
- I: What about your husband's employer paying for some of these things through insurance plan or offering some of these benefits?
- P: Yes and my hesitation is that over the past 10 years the employer has decreased the amount of benefits and increased the amount we have had to pay, if at one time that had been a benefit that would be gone now.
- I: So you don't see this as a very likely scenario in today's economy?
- P: That is correct I don't see that happening, and my husband's responsibility is lowering cost for the company so he would say an employee is compensated well

so if they want to do that they can do it on their own, but I am not going to pay for it.

I: Even if it brought insurance premium down?

P: They are more focused on what is happening now.

P: Yes focused on the bottom line now.

I: This happens with insurance company too if you are not going to be with them they don't care to spend the money from a benefit 15 years from now.

P: Correct.

I: Do you think that is good philosophy?

P: I think that is shortsighted? I understand their predicament I get that, but if they would only pay for it, they are partly right; if I really want it I will pay for it.

I: Very difficult when you go out to eat today and find low fat low salt foods: What are the options?

P: I don't know that there are any, especially in the good restaurants; we have eliminated the fast food restaurants out of our diet partly thanks to the media helping us see they are not good for us. We don't eat French fries anymore we used to love McDonalds we don't eat there anymore. We go to sit down restaurants nice ones there is no indication on the menu as to what is a heart healthy diet I may tell them to eliminate the fat but I never tell them to alter the seasoning on the food. I say don't put butter on the restaurants, but I don't know how much salt is in it. I don't tell them how to flavor it.

I: Should the food industry accept some responsibility for the content and produce foods low in salt and fat and processed food in the store should they share some responsibility in this.

P: No not really I think the food guidelines need to be on the package and the information on the packet the consumer should say way too much sodium in this so I won't buy it. Is it harder to find some of those choices yes but you have to find them for example I eat turkey the flavored varieties have over 500 mg of sodium only the plain turkey has lower salt so I choose to eat only those that are plain.

I: Does your doctor tell you how much sodium to eat daily?

- P: Nope I got that information from television.
- I: Do you think the awareness by the food industry as to what is in the food fat and salt has helped us, was it enough to help you stop buying it and make better choices?
- P: No it wasn't what stimulated me to stop was focus on my numbers and desires to keep down/prevent the medicine, so let's try to take it down by the diet. So self education, just hearing all the time how bad the fast food places are made me say okay I won't go there.
- I: Looking at African American population and knowing hypertension is a big problem what do you think from your experience, is something that would help with the diet of African Americans?
- P: What would help my people? Oh my goodness having food that would taste good! It has to do with taste, when I find something with low sodium but it doesn't taste good I won't touch it; if McDonalds didn't serve the other food, unhealthy food, and only served the healthy food they may eat it. But McDonalds healthy food doesn't taste good.
- I: So taste drives the choice?
- P: Yes I can speak for my family when they come here and I fix heart healthy food they complain, they laugh and tease me and they say tomorrow we will haveIt is also what you are used to we grew up with everything fried, in lard, as time goes on we are getting wiser we try to change but it is not what we grew up. It is comfort food it tastes good and like home when we have that we are happy and we are singing as we eat but when you try to eat more healthy we aren't singing, you just eat to keep nourished.
- I: Do you think generations of change, like eating less salt we could change our diet and weight, through education in school and churches, and get used to foods less salty or fatty?
- P: I think there would have to be something astronomical that occurred because kids like good flavor to and they are picky on flavor more than adults too. Something like we develop an allergy to salt and drop dead at 25 that would make us stop.
- I: So the thought of not having a stroke 5-15 years from now is not motivation enough to decrease salt, fat, and lose weight?
- P: No.

- I: And why is that?
- P: I think we have the ability to compartmentalize what is going to happen to you and what doesn't happen to you, we know lots of people that are fat and eat what they want and they are okay they lived to 85, so we say I feel okay, I take medicine so I am fine, I think we say I know we should I do a lot of times yet we let it go.
- I: Did your physician ever give you readiness tests to decide when you are ready and discuss motivational skills?
- P: Ah, no never.
- I: Not even anyone in the office?
- P: No.
- I: Do you have enough information from your physician to maintain your blood pressure at 140/90 or less or where does your doctor want you to be?
- P: No.
- I: How would you feel if your doctor told you to lose weight, exercise more and then said they would call and sign you up for a diet class? They will also call you back and ask, you to come in for weight checks, how you are doing, what if your doctor's office made phone calls to you to monitor your diet, exercise, how would you feel about that approach?
- P: Who's paying for it? In that scenario who is paying?
- I: Does it matter?
- P: Yes.
- I: If the insurance company is paying for it?
- P: Then yes, if I am paying for it no, because I have been to Weight Watchers 7-8 times. BUT, if she said I am going to sign you up and you will be back in 3 weeks I would let her sign me up, do the 3 weeks return to office and then if she made me sign up for another 3 weeks I would as long as I knew she was checking and I knew that check was coming I would do it. I would do that if she wants me to and if she is going to pay for it (doctor or insurance company).
- I: So you wouldn't be offended by that?

- P: No actually I would think “WOW this is different she really wants me to lose weight I will try it again” and if she is going to pay for it then I will really try it again.
- I: So, diet instruction this is something the insurance could pay for?
- P: Again if the insurance company was paying for Weight Watchers and I knew that vehicle was available would I chose it, not necessarily I would have to be at a point where mentally I was ready to try it, then I would try it again.
- I: But if the doctor said I am going to sign you up with Weight Watchers, see you in 3 weeks then that would give you more motivation to do it?
- P: Yes and if the doctor said I want you to lose 10 lbs. in two months so let’s try Weight Watchers again, give me 2 months on Weight Watchers and then if that doesn’t work we would discuss where you are at and what was the reason it didn’t work at that point I would even pay for Weight Watchers myself because it would be that she is concerned enough to go the extra step and monitor me and help me in some way. Now I did ask her about a year ago if she would help me manage my weight through physician sponsored weight loss and she said no go to Weight Watchers.
- I: No explanation, just Weight Watchers?
- P: No explanation.
- I: If your husband’s insurance gave you a huge discount for losing weight and get the blood pressure down would that be incentive enough with or without the doctor to lose weight?
- P: WHEW probably in the short run but I don’t think I could maintain it, and it would depend on how much weight you had to lose, if you had to lose 50 lbs. by this date or we aren’t paying, NA I couldn’t do that, if it was lose 10 lbs. over next year I would try that.
- I: So it would need to be something, something manageable and not over whelming?
- P: Yes, yes.
- I: How does the relationship with your physician impact your desire to lose weight, take your medications etc. What type of relationship would you like to see with

your doctor to motivate you to lose weight and control blood pressure, develop good lifestyle habits?

P: For me just for me?

I: Yes.

P: I think um a more relationship with that physician that I felt that was kind of personal one where I felt like the physician was relatable and understood the struggles of eating better, exercising, losing weight.

I: And had some solutions?

P: Yes, some solutions that required her intervention if I felt like that doctor was really concerned that I follow or that I get motivate to do it and that she was going to be monitoring where I would get a phone call and say hey how are you doing, you need to come in, I haven't seen you in 2 months what are you doing. That would make me feel like I had a real relationship and I probably would keep motivated because what I know now is if I don't schedule an appointment for whenever she says, it is up to me if I didn't have to take medication I wouldn't schedule an appointment for years out because when I go I can tell that um you read the chart and you say okay yea yea you have these issues, okay let me do my exam and this is what I recommend and come back in 3 months. Well if I don't need my medications I am not coming back in 3 months.

I: So it is kinda her agenda versus where you are really at?

P: Yes.

I: How can hypertension impact the quality of your life?

P: If I have a stroke (laughing) and I am physically unable to get around because my walking is impaired or I can't interact with people because of my speech impaired that is a big impact, otherwise it's kind of like you don't really know it is there a silent ticker.

I: What about your kidneys did your doctor tell you about how hypertension can damage your kidneys?

P: No we discussed kidney function based on my cholesterol medication.

I: So are you on cholesterol lowering medication too?

P: Yes.

- I: Do you take the medication on a regular basis?
- P: Yes.
- I: Does that seem to be decreasing your cholesterol?
- P: Yes.
- I: Is the doctor happy with the results?
- P: No.
- I: So she wants it lower?
- P: Yes she wants it lower.
- I: But doesn't tell you exactly how to get there?
- P: Just try a different medication.
- I: So more medication rather than other things plus medication, does she believe you will need medication in addition to diet or assuming diet will stay the same so therefore she will need to make the medication do the job, or does she discuss that?
- P: She did a little bit when she said based on your history and what has been occurring with your cholesterol you will need to take medication.
- I: If you knew beyond any doubt that controlling your blood pressure to 140/90 or less could improve the quality and length of your life would you change your lifestyle habits?
- P: Change it today?
- I: Yes today.
- P: Honestly, I don't think so still too far in the future, I would like to be able to say yes that would happen because I am a thoughtful and intelligent person. But I cannot say I would absolutely do that.
- I: At what age do you think you would have to get to to think more about that, does it occur at a certain age?
- P: No.

I: So you are a risk taker?

P: I wouldn't categorize myself as a risk taker, but in that scenario I can't see myself doing it. I can't see that far in the future. I think part of me thinks I could get hit by a bus tomorrow this is the end of your life and I didn't enjoy myself in this time period because you were so focused on having a good life in the future you didn't enjoy today, by enjoying I mean enjoyment of your food not exercising. okay I am saying that but I am acting differently, I am having a mental shift, I am watching what I eat I am losing weight I am exercising I am making the changes but I don't like the changes, I don't like having to do those things I much prefer to sit on the couch, look at television, and eat my chips. I hate every change I have had to make I don't like having to do those things. I am choosing not to do those things because I don't want to have a poor lifestyle later, so in effect I am saying I don't want to do those things and none of that stuff is going to stop me from not doing those things, I don't think I said that correctly, I am doing those things I don't want to do those things, I do see the correlation in the future but and that is what is motivating me but if you ask me specifically if that is why you do it No and I don't know why that makes sense, I am doing it I don't want to do it (emphasis here). If somebody else says you need to do this because if you don't this thing will happen that wont motivate me to do it it's not from them it's from me and I think that is what the difference is.

I: Do you feel better with less weight and more exercise or don't you feel better?

P: Feel better because less weight No, feeling better because of exercise to some degree because I am able to do more things, because if I want to jump in the car (another real life example) I have a lift gate car and there was something way in the front and I jumped in and got it and my girlfriend said hey you are able to do that, I said yeah and she said I am not, I probably wouldn't have done that if I hadn't lost weight. I guess I don't feel it enough, I see myself the same as when I weighed 60 lbs. more.

I: Even if your clothes fit better not a motivator for you?

P: No.

I: What is your optimal blood pressure?

P: 120/80.

I: Does the doctor tell you that is what they want to see you maintain?

- P: No past doctors used to tell me my blood pressure was 120/80, 120/79, All the time and the doctor would say that's good that's great so in my mind that is what good blood pressure was.
- I: Do you believe you have the personal ability to manage/control/ improve your blood pressure?
- P: No, other than through medication.
- I: Has your doctor talked to you about depression and the psychological impact of preventing you from getting to your goals?
- P: No zero.
- I: She doesn't bring it up?
- P: No.
- I: Does she ask you about stress?
- P: Yes.
- I: How does she ask you?
- P: How are you feeling, she may ask how your stress level is and I say great!
- I: If you had to define/design the ideal doctors visit to instruct person like yourself to improve compliance to hypertension guidelines what would it look like? What do you think needs to shift to help us with the massive amount of chronic disease that impacts our society?
- P: That is a good question I think that the doctor's office is going to have to intervene at a younger age, when the kids were little and I brought them in to the doctor it was age, weight and height, immunizations focused there was never mention or discussion as to exercise, activity level, what they ate, nothing, so it was never put into their thought process on what they should or should not eat or do, they thought they could eat McDonalds every day and no doctor ever mentioned they shouldn't, so I think the doctor's office has to start at a younger age talking to the kid about their management of their health for later chronic disease, even if a kids didn't see the correlation between now and what could happen at 84 because they can't see now and 5 years at least it would get them thinking in the right direction. As for people like me that are already in that situation I don't know that I have any answers, other than, I always feel like a number in the doctor's office that is a benefit to their income stream not as a

person that needs real assistance, and I have always felt that no doctors ever looks at the entire picture it is very compartmentalized. If I want to talk about my sex life I go to the gynecologist, if I want to talk about stress I go to the mental health doctor. If I want to deal with my feet problems I have to see a podiatrist I can't even talk to my doctor about my feet, when I go into the doctor they ask what is your pain level and I say a 6 and they say what's the matter with you, and I say my foot hurts okay and that's the end its not even mentioned I am not seeing that doctor for that. I said to the doctor once do you think my blood pressure is so high because of this pain, could be she said, but take this medication because that is not her focus, somebody has got to see the entire picture. I was referred to a chiropractor because someone told me they look at the entire picture but I didn't feel they did he was looking at the bone structure so maybe back to the family doctor that sees the entire picture that is what I would like to talk to one person who would say OH you are having a problem with um you are having a problem with your foot maybe that is what is affecting this, let's put this all together, this is the whole package and then you can be helped in that way that is what I would like to see in a doctor.

- I: How can the community and our schools can they help us assist with hypertension compliance?
- P: To some degree, like I said I got a lot of my information from the television, other people, from my friends, I don't have children in the school system anymore but yes they could help.
- I: Other items you would like to share about blood pressure compliance?
- P: I would like to be clear about one thing if communication came from the doctor's office, that was unanticipated or anticipated, where it moved from, me being in charge, me finding out the education, and me making the appointment, if I got a call right now from the doctor office that said I haven't seen you in a couple months how have you been, taking your readings, or stop in and get a reading from the nurse, I would be blown AWAY and it would help me think about my hypertension more and what I need to do more than if it came from me only.
Insert appendix here. Appendixes are ordered with letters rather than numbers.

Appendix I: Sample Interview Transcript, Physician

Physician #5 Interview

Questionnaire #A429ADM11

Folder A

File # 9

Gender: M

Age: <50

Degree: DO

Ethnicity/Race: Caucasian

Education/Medical School: University of North Texas College of Osteopathy Medicine.

QUESTIONS

- I: What methods do you employ to assist patient with compliance to stop smoking, lose weight with new or existing diagnosis of high blood pressure?
- DR: I begin the education process, to help them understand their weight, salt intake and effects on their blood pressure and it takes more than one or two blood pressure agents to get to goal, and if their not to goal on one or two agents we have a lot to choose from to get them to goal but there are life style issues that come to play in hypertension, I don't get the impression that people don't understand that but get the impression that of all the things I have to offer about controlling blood pressure that is the least thing they want from me of all the things I have to offer them.
- I: Why are they the least interested you think?
- DR: Because it is hard, I don't have time to exercise, not enough time in my day all that has an effect on their ability to lose weight they don't think they can accomplish a significant amount of weight loss to impact blood pressure.
- I: How do you determine the patient's readiness for lifestyle changes?
- DR: No I don't have a way to determine that, no.
- I: When they first come in do you put together a care plan for them?
- DR: No, I think I have that in my head, on the first visit I talk about the things they need to get their blood pressure under control and that every persons whose body weight over normal is counseled on the impact of body weight on their health, if they decrease their weight they could lower blood pressure and use less medications, we talk about how much energy we need to exert to meet calorie requirements I give them detail.

- I: Do you give them a book or papers [to read]?
- DR: Everyone of my patients gets a personal health organizer kit with all that information I go over the purpose but how many use it for the purpose of it I don't know, the books tell them how to take care of their health I refer people to Mayo Clinic website, and live strong website as well, places where they can put in their food to calculate their calories.
- I: Do you ever refer them to the dietician or to Weight Watchers or pick up the phone and make appointment for them.
- DR: No. If they say they are going to go to Weight Watchers I tell I think Weight Watchers is fantastic; I wish you would do that. I would have to say I have not picked up the phone and said I am going to make the appointment right now. That is an approach.
- I: Do you have a formal written plan in the chart?
- DR: NO, in my head I do.
- I: How do you ask the patient about medication compliance; how do you determine if they are taking their medications?
- DR: Every visit at the beginning I go over the medication list and ask if they are taking the medications the way they were directed to I put the list in front of them?
- I: Do you believe they are honest with you?
- DR: Yes I do, they are.
- I: Do you ever question them about refill being too long in between refills?
- DR: No occasionally the insurance company will send me a paper and say this person is not refilling correctly, but the reports are not often accurate because they don't have all the data rarely do they match the patients situation.
- I: So what the insurance company sends is not very useful?
- DR: No, once in awhile, the minority, but the majority is useless.
- I: You mentioned the life planner you give people is that something they fill in?

- DR: Yes it has a DVD they don't have to read it, narrated with graphs and pictures tables to fill in, emergency contact information about labs and trending of labs how to calculate BMI.
- I: Like a personal health record, electronic they can carry it on a stick.
- DR: Yes patients get a choice they can get a stick, but 90% pick the paper even the younger ones except the very youngest patients pick the stick.
- I: Do you get any idea that they use this or refer to it?
- DR: I do refer back to it, on future visits I would say one in 15 patients bring it with them and use it the way it is intended. Every visit my patients get written instructions and they leave with my typed notes, and it says bring your lifeline with you on next visit to keep it updated.
- I: Do they use it to ask questions or are they shy about asking questions?
- DR: No, I don't think they are shy about asking questions as long as the information is going one way they are appreciative when I give them homework they are not appreciative about that when I say the biggest problem is your weight when you return in 2 months try to lose they either cancel the next visit or they come in and say I didn't do that work the homework that is.
- I: Do you ask patients to return to the office for repeat B/P checks, weight, etc.?
- DR: Oh yes about half do this, people return most of the time but doesn't return having done exercise or weight loss.
- I: Why do you think this is; do they tell you why?
- DR: No time they don't have time I even have patients with bad GERD so don't eat that late, move back so don't eat after 7 pm they can't do it same habit despite the symptoms and despite the cost of the medicine. It's a vicious cycle.
- I: How do you determine patient's readiness of change? Would people appreciate someone that says lets sit down and discuss why it is difficult for you to change?
- DR: Umm, I don't, I think if it didn't cost them they would appreciate it [someone sitting with them and understanding readiness].
- I: What is your responsibility if any to assist your patient with hypertension compliance?

- DR: My responsibility to give them the information they need to know to understand the impact that hypertension has on kidneys, heart, blood vessels and follow up with them often enough to see if medications work, direct people to make lifestyle changes, all that information that is my responsibility, but I can't go home with them.
- I: Back to medication does the patient say side effects are a reason they don't take medications?
- DR: Yes, but small portion, there are many medications we can find something that works that doesn't cause you a problem.
- I: So that is not a deterrent to taking blood pressure medications?
- DR: No.
- I: You mentioned money, do you think insurance is a problem or a help in assisting with hypertension compliance, lifestyle changes, does insurance play a part or not?
- DR: I don't think insurance plays a part.
- I: You don't hear patient say I didn't come back because insurance doesn't pay for it? Or my insurance doesn't pay for Weight Watchers so I won't go.
- DR: I hear that one once in awhile. I have a couple patients that work for a large company that gives them an incentive to participate in a weight loss program or money does not get placed in their flexible spending account.
- I: Do you think that is effective?
- DR: I don't know, I don't know if the data is there yet, I only have two patients so I can't tell. I think that could be a motivator. The work place putting that onus back on patient to perform at a higher level is a good place to do it.
- I: Do you feel the current health care system assists you in increasing patient compliance? Why, why not?
- DR: I don't think there is any assisting.
- I: Any role they should take, insurance company, to help should they be involved or concerned?

- DR: I think they should be concerned and probably involved, in that people should be incentivized to participate in lifestyle change programs to meet their weight and blood pressure goals, in order for decrease expenses to occur down the road.
- I: So that might be a better solution to hit it at the patient level rather than hit the doctor with incentive or penalty.
- DR: Right easy one for me to agree, it makes good sense I don't know where that decision is made to say okay all people whose BMI over X should be eligible for a benefit, or for X visits with Weight Watchers, doctor could bring in people for weight lose group sessions, not sure group visits always work for weight loss, but maybe a combination of individual and group.
- I: Do you feel the average physician is ready to handle the volume of chronic diseases like, diabetes, and hypertension?
- DR: No, no we are ready for "business as usual" if we are *not* going to be graded by goals than yes we are ready. But, if there are benchmarks to be reached, I don't think our current medical system is set up to engage patients at the level they need to achieve those goals, and the onus cannot be on the doctor to make people change lifestyle they have to come from [the] patient so the incentives need to be there instead of on us, we need both, doctors need to know that patients need to come in X number of visits and you need to touch on these points but once you have touched on these points that is all we can do and we need to educate, but once those are done that is our part and the patient needs to be responsible.
- I: What about the community or the food industry hard to find food low in salt and healthy.
- DR: Oh yes, yes I think the measures that have started to happen, where restaurants have to post the content of the food is good, the food industry needs to take some responsibility for the calorie salt laden foods BUT it ultimately it comes down to individual choice.
- I: I think patients know it is their responsibility but if you have to stop for food it is not possible to eat food with less than a day's worth of salt in one meal so they almost give up because it is not easy for them.
- DR: Correct
- I: What about starting with education, starting with younger children educating them?

- DR: That is a very good place to start, can't teach them to love fatty salty food as a kid and not expect them to like it as an adult. If your child is not eating vegetables younger they won't eat them latter.
- I: What about the patient doctor relationship; what is it about the relationship that is vital to that patient to make lifestyle changes what about that relationship is the key part to motivate the patient?
- DR: Yes it is vital I think it is, the doctor is on their side, help them reach optimal health and has the knowledge of the various patho-physiological process to help them treat disease, there are two sides the prevention side, and treat disease, once the patient has disease we have missed so many opportunities primary prevention, secondary prevention and treatment of chronic disease. Primary follow up on yearly basis, look you gained 20 lbs from last year,[you] need to see me three times this year to decrease weight so we can prevent hypertension and other disease. I tell them weight lose is hard lifestyle changes, if you don't meet your goal from month to month, you are not weak, I am not antagonistic we will alter the plan to make effort to meet the goal, at the same time I can't lose your weight for you, but here are some tips tools that have worked for other people.
- I: So we need to look at the doctor's office as a place to come to help us stay well not just a place to come when they are sick.
- DR: Absolutely!
- I: Do you think people understand that?
- DR: No, they view doctor's office as a place to go when sick and most doctors assume a role of taking care of people when they are sick and taking care of people when they are well is a murky, harder to define job description. It takes as much if not more time to ask about wellness than the management of illness. By the time the person has high blood pressure I can provide you this medicine that visit is a lot easier than talking about your BMI and the chance of developing diabetes in next 5 years is 80% that takes more of my time and is more difficult. I have to counter every argument I have to be innovative to help them achieve a goal. This is time consuming.
- I: And it is a different skill set?
- DR: Yes and not everyone came in to medicine to be a health coach; they were trained to identify disease processes and treat them.
- I: Do we need health coaches in the doctor's office?

- DR: Yes if paid for it absolutely, if the health coach is going to get a decent hourly wage, the doctor can not employ that person from his salary if X number of people had lifestyle goals needed to be watched and coach assistance then there should be a benefit paid for them to receive life coaching from insurance or premium benefit.
- I: So that is something the insurance company could assist with?
- DR: Perhaps, I have a problem with putting this back on the insurance company; I still think if you are paying X number of dollars per month is you are trying to protect yourself against catastrophic illness the couple hundred dollars I pay a month is not for my ongoing health expenses in this way, we can't look to the health insurance industry, to pay them more is a type of entitlement attitude that prevents people from taking on the full responsibility of their health. If we can't take out \$60.00 to pay for a health coach why should the insurance company do it?
- I: Have you given any thought to how you would reorganize your office, staffing behavioral health staff?
- DR: These days it is not all about the acute it is about the chronic a big change that is why physician training needs to change.
- I: It is not about acute health needs in the world but the chronic conditions?
- DR: Yes.
- I: Is time ever an issue for taking care of patients and assisting them with compliance?
- DR: Not the way I set up my office/practice I have not made time the constraint I do allow time for my patient visits but I made a conscious decision and it definitely affects my bottom line so I make way less than the average for our areas but I make less money but I sleep better at night knowing I am the kind of doctor I always wanted to be. I make less money but as long as I can pay my malpractice and my rent, but as reimbursement declines it make it more difficult to stick with this ideal office view.
- I: So we are not going in the right direction with the chronic disease we have, the reimbursement is not rewarding the increased time and attention we need to spend is that fair?
- DR: Yes the physician is not rewarded for looking down the road to prevent illness and allow people the time to help make the changes they need to keep people healthy.

- I: Have you given any thought to how you would reorganize your office, staffing behavioral health staff?
- DR: I wanted to introduce group visits this year but I don't think the reimbursement is there yet; but instead I had to focus on the changes that need to be made to meet MU.
- DR: I encourage my patients to take blood pressure at home. I do not change blood pressure medicine based on office appointments.
- I: Do you encourage patients to bring in their B/P cuff from home?
- DR: Yes they bring it in and we check with both cuffs.
- I: Do you think there are good blood pressure cuffs out there [to purchase]?
- DR: Yes I think so consumer reports have done a good review.
- I: Is systolic hypertension something you treat?
- DR: Yes absolutely; I don't make a distinction I think that went away.
- I: Do you treat blood pressure at 140/90 if they can demonstrate that home or do you say let's try lifestyle first?
- DR: No no people say let's not start that until I lose some weight but I say 95% of people don't make life style changes I tell you what let's start the medicine and lose the weight you need to do both when you lose the weight we can take the medicine away. We need to treat the blood pressure now.
- I: Are you aware of JNC-7 guidelines?
- DR: Yes
- I: Any other guidelines you use?
- DR: No, I use JNC-7. I am waiting for JNC-8 (late) I tell people that the new guidelines are probably going to say 130 and I think they will be difficult hard to get people under 140 it may be late because they are afraid to overshoot like we did with glycemic levels; if we overshoot and have people faint, crashing cars and hospitalizations we will have more problems and less compliance and we will have a hard time gaining respect.

- I: You bring up a good point using evidence to treat individuals and applying the guidelines; the JNC-7 do you follow the guidelines to treat hypertension?
- DR: Yes JNC-7 gives us plenty to follow.
- I: Some offices find patients like books with pictures rather than words have you found any difference?
- DR: No I have not; I have gone from pictures to words, you mentioned about health literacy, I saw another article yesterday about that and we are woefully deficient in understanding health literacy.
- DR: I spent a lot of time in my life planner and I put a lot of thought into it and it hasn't been as well accepted as I thought.
- I: Education is not always the answer to get people to change.
- DR: Right, I think people need to be incentivized to change. Obesity and diabetic epidemic was not on the radar screen when I graduated and now we need to practice another type of medicine than what I/we was trained for.
- DR: But it will need to fall back on patients and affect their pocket book, but it can't be all negative and we can't line the insurance company pocket with the incentive.

Curriculum Vitae

Pamela S. Ballou-Nelson RN MSPH
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Education:

- Doctor of Philosophy ABD—Public Health 2012, Walden University, Minneapolis, MN
- Masters of Science—Public Health, 2008, Walden University, Minneapolis, MN
- Masters of Arts—Communication, 1984, Wheaton College, Wheaton, IL
- Bachelor of Science—Nursing, 1973, University of Utah, Salt Lake City, UT

Relevant Professional Experience:

- Clinical Quality Director for Physician Hospital Organization, 2006—present, Adventist Health Network, Bolingbrook, IL
Responsible for the clinical integration process of a 600-physician hospital organization to develop health interventions at the physician and community levels
- Adjunct Professor, Wheaton College, Wheaton, IL, 2007—2008
Taught Intro to Global Public Health and Nutrition
- Director of Student Health Services, Wheaton College, Wheaton, IL, 1997—2006
Directed all aspects of student health services including the student insurance health plan. Worked in a clinical capacity with ill and well students. Organized and conducted student health education programs. Expanded offerings to include ancillary health services such as massage therapy and developed an extensive

travel medicine program for pre- and post-travel care. Worked with international students to assist with the transition of health care from their home countries.

Directed and developed policies and procedures for Wheaton's North Woods Campus and HoneyRock Camp.

- Director of Operations, 1996—1998
Avanti Health Systems, Oak Brook, IL
Responsible for the overall operations of 13 doctors' office centers, urgent care and primary care services. Responsible for closing down and phasing out centers as the parent company (New York Life) removed itself from the direct health-care market.
- Health Center Manager, 1995—1996
Health Springs Medical Group, Bloomingdale, IL
Responsible for oversight and management of an innovative, experimental health-care system consisting of five physicians, medical staff, x-ray and lab services.
- Independent Consultant, 1994—1995
Wheaton, IL
Set-up and analyzed physician practices as an independent consultant with Adventist Health System and other private physician groups.
- Independent Consultant, 1984—1995
Chicago, IL
Consulted with Carstens Health Industries on medical record use for home health care. Conducted a study on the *Future of Electronic Medical Record and the*

Potential Impact on Paper Charts (1995).

Spoke at several annual company conventions.

- Administrative Director 1989—1994,
Women's Center for Health, Edward Hospital, Naperville, IL
Responsible for the day-to-day operations of this primary care and OB-GYN health center, with over 20,000 patients, six physicians, a nurse practitioner, office staff, massage services and dietician classes. Organized and conducted classes on women's health issues at the center and in the community.
- Director Home Health Care Agency, Copley Hospital, Aurora, IL, 1985—1989
Regional Operations Manager, Service Master Home Health, Downers Grove, IL
Began with Service Master Home Health as the director of Copley Hospitals Home Health Care; turned the operation into a profitable center and was promoted to regional operations manager for three states and nine hospitals. Started Northwestern Hospital Home Health Care in Chicago during tenure.
- Home Health Agency Administrator, 1984—1985
Americare Home Health Agency, Naperville, IL
Responsible for start-up activities for this private home health-care agency, then merged it with Service Master Home Health Care at Copley Hospital, Aurora, IL.
- Hospital Nurse (float, part-time), 1982—1984
Good Samaritan Hospital, Downers Grove, IL
Worked as a float RN during my graduate school program at Wheaton College.

- Hospital and Community Health Nurse and EMT II, 1976—1982

Faith Hospital, Glennallen, Alaska

Worked in small rural hospital as in-patient, out-patient, and community health nurse among Alaskan natives and local residents.

Other Experiences:

- Proprietor/Administrator, 1993—2003

Nelson Montessori, Wheaton, IL

Owned and managed a Montessori school with 100, 3-6 year-old students.

Began an elementary program for 1st—3rd grade; wrote two successful grants.

Sold the school to staff members in 2003.

Community Service:

- Served on the executive council for HoneyRock Camp, Wheaton College North Wood Campus, Three Lakes, Wisconsin (2008-present).
- Served on the American Board for Faith Based NGOs in Avadi, India (2007-present).
- Red Cross Instructor Certificate for First Aid/CPR/AED
- Member of Illinois QIO governing body (2010 -present).

License and Certification:

- Registered nurse license, State of Illinois, active, 041.151602
- Registered nurse license, State of Wisconsin, active, No. 147-188-030

Publications:

Ballou-Nelson, P. (2010). A community view: Reviewer, How personal health records can improve patient care and outcomes in many healthcare settings. Northern Illinois University.

Professional Presentations:

- Ballou- Nelson, P. (2010, June). *Clinical Integration Workshop: Panel Discussion* presented at the Valence Health Clinical Integration Workshop, Chicago, Illinois.
- Ballou-Nelson, P. (2010, March). *Running a professional camp in a fearful world*. Paper presented at the meeting of the Christian Camping Association, Lake Geneva, WI.
- Ballou-Nelson, P. (2009, January). *Globalization, integrating faith and learning*. Paper presented at the Indian Theological Seminary, Avadi, India.
- Ballou-Nelson, P. (2004). *Identifying emergencies*. Workshop presented at a staff development session, Wheaton College, Wheaton, IL.
- Ballou-Nelson, P. (1999, March). *Work place mentoring*. Paper presented at a staff development session, Wheaton College, Wheaton, IL.
- Ballou-Nelson, P. (1995, February). *Continuous quality improvement process: Avoiding pitfalls*. Paper presented at the meeting of The Health Management Association, Lake Tahoe, NV.
- Ballou-Nelson, P. (1990, September). *Marketing your women's health program*. Paper presented at the meeting of the Third annual meeting of the National Association of Women's Health Professionals, Chicago, IL.

Honors and Awards:

- Outstanding Young Women of America: Community Service and Professional Excellence (1982)
- Certificate of Appreciation: Salt Lake City Community Action Program (1973)

References:

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