A PROTOCOL FOR ASSESSMENT AND EDUCATIONAL PLANNING FOR THE NON-PHARMACOLOGIC TREATMENT OF STAGE I HYPERTENSION

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by

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ABSTRACT

A PROTOCOL FOR ASSESSMENT AND EDUCATIONAL PLANNING
FOR THE NON-PHARMACOLOGIC TREATMENT
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Hypertension is the most prevalent cardiovascular disease in the United States and, if untreated, becomes a leading risk factor for stroke, congestive heart failure, renal disease, coronary heart disease, retinopathy and ruptured aortic aneurysm. After 65 years of age, about 40% of whites and 50% of African Americans, in the U.S., will have a significant blood pressure elevation if left untreated.

The purpose of the project was to develop a clinical protocol for health education and health behavior change to be used in the primary care setting for the non-pharmacologic treatment of Stage I hypertension. The literature search supported a non-pharmacologic treatment approach and the theory used to guide the development of this protocol was the Health Belief Model.

The project is designed to assess the client's health behavior. The protocol provides the health care provider and client with a format for health education and health behavior change that is to be used collaboratively between the health care provider and client.

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INTRODUCTION OF THE PROBLEM

It has been estimated that 58 million Americans are hypertensive. Hypertension is defined as sustained diastolic blood pressure of 90 mm Hg or higher or a systolic 140 mm Hg or higher (Blake & Beebe, 1991; JNC VI, 1997). Hypertension is a consistent elevation of systemic arterial blood pressure and is more common in African-Americans and the elderly. Hypertension is the most prevalent cardiovascular disease in the United States. Untreated hypertension is a leading risk factor for stroke, congestive heart failure, renal disease, coronary heart disease, retinopathy, and ruptured aortic aneurysm. Heart disease is the leading cause of death in the United States and approximately 1.5 million Americans have heart attacks every year. After 65 years of age, about 40% of whites and 50% of African Americans, in the United States, will have a significant blood pressure elevation if left untreated (Rosenfeld, 1995). Early, aggressive intervention of hypertension in the past several decades has positively impacted the morbidity and mortality on the American population (Rosenfeld, 1995). However, what begins as a mild form of hypertension can progress to more severe elevations in blood pressure, eventually progressing into cardiovascular disease (Kaplan, 1993).

The purpose of the project is to develop a clinical protocol for health education and health behavior change to be used in the primary care setting for the non-pharmacologic treatment of Stage 1 hypertension by the Advanced Practice Nurse (APN). Stage 1 hypertension is defined by a systolic blood pressure reading between 140-159 mm Hg and a diastolic blood pressure

reading between 90 to 99 mm Hg, with two or three readings at intervals of two weeks or more, taken over one to two months (Kaplan, 1993; JNC VI, 1997).

It has been estimated that between 50 and 60 million American adult's health is at risk due to elevated blood pressure and the most frequently diagnosed problem in the primary care setting is essential hypertension (Eisenberg et al, 1993). Since 1973 essential hypertension is the most frequently reported morbidity in every National Ambulatory Medical Care Survey (Eisenberg et al, 1993). Frequently, the APN has the opportunity to be the first provider to diagnose, educate, and develop a cost effective and firstline treatment plan during a routine office visit for health maintenance if the client presents with an elevated blood pressure reading. The APN can begin discussing what hypertension is and begin to question the client about their health behaviors during the initial visit.

Stage I hypertension usually appears between the ages of 30 to 50 years of age and has a slow progression (Kaplan, 1993). A client can remain asymptomatic until there is considerable target organ damage after 10 to 20 years. Hypertension is a slow, silent killer and the most effective treatment is to change the environmental factors that lead to continuing elevated blood pressure and eventual cardiovascular damage.

BACKGROUND OF THE PROBLEM

It has been well documented that morbidity and mortality increase with elevated systolic and diastolic blood pressure (McCance & Huether, 1990). The diagnosis of hypertension is now based on elevations of either systolic or diastolic blood pressure and management of hypertension should be focused on the reduction in both. To diagnose hypertension a client should have at least two to three blood pressure readings at intervals of two weeks or more when

taken over one or two months (Kaplan, 1993) and those readings should all be elevated. If the initial blood pressure is extremely high (180/110) or if there are threatening signs of organ damage (Tierney, McPhee & Papadakis, 1996), then pharmacologic treatments should be started immediately.

The largest portion of clients with an elevated blood pressure experience continued, uncomplicated, Stage I hypertension (Liehr, Vogler & Meininger, 1997). Stage I hypertension can be treated with non-pharmacologic treatment after the patient is assessed for the presence of other concomitant health problems. The benefits of a conservative approach are: 1) clients are not at high risk when postponing therapy until hypertension is well documented and non-pharmacologic treatments are given an opportunity to decrease the DBP below 90 mm Hg, 2) many of these clients may become normotensive with repeated measurements when the blood pressure is monitored over time, 3) health behavior changes may bring the client's blood pressure down, and 4) pharmacologic therapy can have risks, costs and side effects. Balancing the likelihood of compliance with long term expense are other factors to consider with anti-hypertensive treatment (Kaplan, 1993).

According to Kaplan (1993) 95% of all hypertensive adults in the primary care setting, 18 to 65 years of age, will have no identified cause for hypertension and should be defined as either primary, essential or idiopathic hypertension. Though the exact pathogenesis of primary hypertension is not clear; hypertension is caused by either increased cardiac output or peripheral resistance, or both (McCance & Huether, 1990). Blood pressure may continue to stay elevated after cardiac output normalizes due to increased peripheral resistance resulting from tightening and thickening of the arterial blood vessels (Kaplan, 1993).

An APN is an appropriate health care provider to offer information on health behavior change because their education was designed to focus their skills on interviewing and teaching the client while assessing blood pressures during regular office visits. The focus of the APNs education and health care practice is wellness promotion and client education incorporated into regular office care visits. A routine office visit may provide a unique opportunity to assess the client's knowledge base as well as explore the client's self-efficacy, spiritual and health belief system, health behaviors, and the client's personal approach to wellness. All of this information is relevant when collaborating with the client on the most effective treatment plan for their hypertension care.

The focus of health care is changing today, with a slowly evolving shift in responsibility for illness-care and decision-making by the provider in the medical model, to a pattern of the client and health care provider working together to provide a treatment plan that is consistent with and incrementally improving the client's quality of life and health behaviors. Change is dynamic and requires decision making and action taking by the client, as well as counseling, support, and education from the health care provider. Nurses have historically recognized the importance of listening to and working with clients on every aspect of their health care needs.

Along with the shift in in focus of health care to increased client involvement and health behavior change is the concern that providers too often have only "band-aid" solutions to problems. Hypertension is a good example. Health behavior change is the recommended first-line treatment (Liehr, Vogler, & Meininger, 1997) and non-pharmacologic treatment is more cost effective in prevention of morbidity and mortality, sickness and disability, as well as costing

less than drug therapy. "Owing to the high proportion of the population potentially involved in treatment, and the side-effects of drug treatment, the interest in non- pharmacologic treatment is growing. Non-pharmacologic treatment is recommended as the treatment of choice for mild hypertension, and drug therapy should only be used if non-pharmacologic treatment does not lead to the reestablishment of normal blood pressure" (Johannesson et al., 1991, p. 307). The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (1997) recommends health behavior changes as an effective way to lower blood pressure and reducing other cardiovascular risk factors at little cost and no risk. Unfortunately, the number of clients treated by recommendations for health behavior change instead of medication is limited. The APNs holistic approach toward client care, a role designed to build a collaborative relationship with the client with a focus on effecting health behavior change that may impact the client's family as well as the client, and willingness to establish a cost effective, high quality treatment plan makes the APN the most ideal care provider to utilize the non-pharmacologic treatment protocol.

There are several reasons that non-pharmacologic treatment is appropriate when the initial diagnosis of Stage I hypertension is made: 1) the cost of long term pharmacologic treatment is high, 2) antihypertensive drugs may disrupt sleep, cause urinary frequency, interfere with sexual desire and function, 3) antihypertensive drugs may leave the client feeling "washed out", 4) using pharmacologic treatment will require continued visits to the primary care provider for prescription refills, 5) medication does not "cure" hypertension and the client will need to continue medication use long term and 6) continued, long term use of medications may result in side effects as well as the risk of non-

compliance. The medications often make clients feel worse than non-symptomatic primary hypertension. To avoid vessel and organ damage from the long term effects of hypertension the most appropriate treatment is to attempt to manage health behavior change to control Stage I hypertension.

STATEMENT OF THE PROBLEM

The purpose of the project was to develop a clinical protocol for health education and health behavior change to be used in the primary care setting for the non-pharmacologic treatment of Stage 1 hypertension by the Advanced Practice Nurse (APN). Stage 1 hypertension is defined by a systolic blood pressure reading between 140-159 mm Hg and a diastolic blood pressure reading between 90 to 99 mm Hg, with two or three readings at intervals of two weeks or more, taken over one to two months (JNC VI, 1997).

Hypertension is the leading cause of cardiovascular disorders in the United States and has been estimated to affect between 50 to 60 million people in this country. Hypertension is called the silent killer because the individual often has no symptoms of elevated blood pressure for many decades, not until there is organ damage. The only way primary hypertension is identified is by taking an individual's blood pressure.

Hypertension is the major contributor to diseases such as myocardial infarction, congestive heart failure, cerebral vascular accidents, renal failure and peripheral vascular disease (Sadowski & Redeker, 1996) and it was the most common reason for visits to primary care health providers in 1990 (Eisenberg et al., 1993). Hypertension becomes a financial burden due to health care costs, as well as the unmeasurable impact on longevity and quality of life to millions of Americans after the individual has suffered target organ damage. Eisenberg et al (1993) cited several large studies that have shown that

by lowering blood pressure, morbidity and mortality are greatly reduced.

The majority of persons with primary hypertension have a diastolic blood pressure that ranges between 89 and 104 mm Hg and have one or more risk factors. McCance and Huether (1990) list the risk factors for primary hypertension as: 1) family history, 2) advancing age, 3) male sex, 4) African American race, 5) obesity, 6) excessive sodium intake, 7) diabetes mellitus, 8) borderline hypertension, 9) tobacco use and 10) excess alcohol consumption (greater than one ounce per day). Sadowski & Redeker (1996) differentiate between the risk factors as non modifiable risk factors such as family history, advancing age, male sex, and African American race; modifiable risk factors such as diabetes mellitus, borderline hypertension, tobacco use and elevated blood cholesterol levels; and contributing factors including physical inactivity obesity, and psychological stress.

In 1991 a collaborative project conducted by the Michigan Department of Public Health and the Michigan Association for Local Public health, **Promoting Cardiovascular Health in Michigan,** resulted in a report documenting that almost half of all deaths in Michigan can be attributed to cardiovascular disease (CVD). The report found that risk factors that can be changed to prevent CVD are hypertension, elevated blood cholesterol and cigarette smoking. The report further states that 74 percent of premature deaths in the United States can be attributed to these three risk factors and that 45 percent of CVD deaths can be prevented with health behavior changes ("Promoting", 1991).

DEFINITION OF TERMS

Health behavior change: For the purpose of the project health behavior change will be defined as an ongoing process of altering specific behaviors to improve a client's health status. The change in behavior is learned

and purposeful with the long term goal of improved quality and quantity of life. Health behavior change involves consideration of the client's daily routine and changing high risk behaviors to healthy behaviors, eg., eating a wholesome breakfast of low fat milk and cereal with fruit instead of skipping breakfast or only having a cup of coffee. This protocol will focus on multiple areas of health behavior changes including nutrition, alcohol intake, weight reduction, exercise, and stress reduction as identified in the review of the literature.

Non-pharmacologic treatment: Non-pharmacologic treatment involves using treatment modalities beyond treatment of the client only with medication for symptoms or diseases. This may involve lifestyle behavior change, physical therapy, stress management, behavioral change, education, dietary changes and counseling. A review of the literature identified several treatment modalities that have proven useful in decreasing an individual's blood pressure. Effective non-pharmacologic treatments are dietary changes, weight loss, exercise, and smoking cessation.

Stage I hypertension: Hypertension is a consistent elevation of systemic arterial blood pressure. The diagnosis of Stage I hypertension is made when the systolic blood pressure reading is between 140-159 mm Hg and the diastolic blood pressure reading is between 90 to 99 mm Hg with at least two to three readings at intervals of two weeks or more when taken over one to two months (JNC VI, 1997). When there is no cause identified for the client's hypertension they are diagnosed with primary hypertension; also known as essential or idiopathic, and this includes about 95% of all hypertensive individuals. Hypertension is an ongoing, symptom less, painless disease process that will cause severe damage to the heart, blood vessels, kidneys, brain and eyes if not treated.

HEALTH BELIEF MODEL

The theoretical framework that will be used in the development of this protocol is Health Belief Model (HBM). The HBM is a psychosocial model that was developed in the 1950's by Rosenstock, Hochbaum, and Kegeles and was used as a tool by Public Health Service to explain personal health behaviors as a predictor for the use of preventive services (Pender, 1996). The HBM is a systematic approach for evaluating beliefs and barriers that influence a client's likelihood of taking an action that will improve their health. This model may provide the APN with necessary information to help clients alter their beliefs and to set goals for improving health. The approach for predicting behavior is to identify the value placed on a goal or outcome and the client's belief that a certain action will produce the desired outcome. Key dimensions of the model are the perceived susceptibility to a disease, the perceived severity of the disease, factors to modify the disease process, the individuals belief they are vulnerable to the disease and the cues to action. The belief that preventive action will alter the outcome, while identifying barriers to preventive action, gives the APN a framework to evaluate the likelihood of an individual taking the recommended action (Pender, 1996).

The HBM is ideal in assisting the APN in the primary care setting to design a non pharmacologic treatment plan for a client with a new diagnosis of mild hypertension. The assumptions on this model regarding health behaviors are: 1) most persons seeking health care have a desire to avoid illness, 2) most individuals believe that specific health actions prevent disease, 3) seeking care is a cue to action, therefore, the client is already performing health seeking behavior by showing up for the office visit.

The components of the HBM are the **Individual Perceptions, Modifying Factors** and **Likelihood of Action**. Each component will be explained in relation to the use of the framework in the hypertension protocol.

The **Individual Perception** is the component of the HBM that addresses the client's perceived susceptibility to hypertension due to risk factors or family history; the client believes they are at risk for developing hypertension, and the client's perceived seriousness of having hypertension; the belief that the long term effects of hypertension can negatively impact their health. Believing that they are at risk (susceptible) and the impact of the illness on their life (severity) the client is more likely to engage in preventive behaviors (Pender, 1996).

Modifying Factors may predispose the client to take preventive action. **Modifying Factors** are the factors that predispose the client to take preventive action; demographic factors such as age, gender, race, and sociopsychological variables such as peer interaction, family support, advertising, and socioeconomic background. There are also structural variables that may influence the client's behavior; the perceived threat of developing hypertension and the long term negative effects of hypertension on the client's health. The client may be influenced to adopt health behavior changes because the APN has educated the client about the negative effects of hypertension on the client's health and by utilizing past experiences of knowing someone with a poor health outcome from hypertension. Knowledge and previous experience may be useful as motivating factors for preventive health behavior changes by the APN. **Modifying Factors** are also comprised of cues to action; variables that may be used to help motivate the client to pursue health behavior changes.

Pender (1996) states that the general assumption can be made that the higher the willingness to change behavior, the lower the intensity of the cue is necessary to stimulate the behavior change.

Another component of the HBM is **Likelihood of Action**. The factors that affect the **Likelihood of Action** are the perceived benefits of a particular action minus the perceived costs or barriers to action. For the APN using the hypertension protocol that means the benefits of health behavior changes minus the perceived barriers to health behavior changes. Pender (1996) states that the benefits minus barriers determines the likelihood of taking preventive action.

For the hypertension protocol the components of the HBM that will be utilized are the **Modifying Factors** and the **Likelihood of Action (Benefits and Barriers)**.

The APN can use the model to evaluate the client's knowledge base relative to hypertension, provide teaching, and evaluate modifying factors and the client's likelihood of action. The APN would first evaluate the client's perception of hypertension and provide information about hypertension. Though asymptomatic, hypertension is a severe health risk and an ongoing disease process. The client should be evaluated for risk factors and health habits. The APN can then give the client some material to read and reschedule a visit in two weeks to recheck the blood pressure and continue the education process. The APN may also use this model for cues to action to motivate the client, such as: 1) the APN's support, 2) family support, 3) support of friends, 4) media information 5) instructional material, 6) increase the client's knowledge regarding hypertension and its relationship to cardiovascular health, and 7)evaluate client for prior knowledge of someone with a poor health outcome

from hypertension. The HBM allows the APN and client to work within a framework to explore the barriers and benefits with the client. This empowering helps the client to make health behavior changes based on knowledge and belief that these health behavior changes will improve their health status. The client is also empowered to take personal responsibility for health care decisions that affect their life and they are encouraged to have some control over the changes and healthy outcomes in their life (see figure 1 & 2).

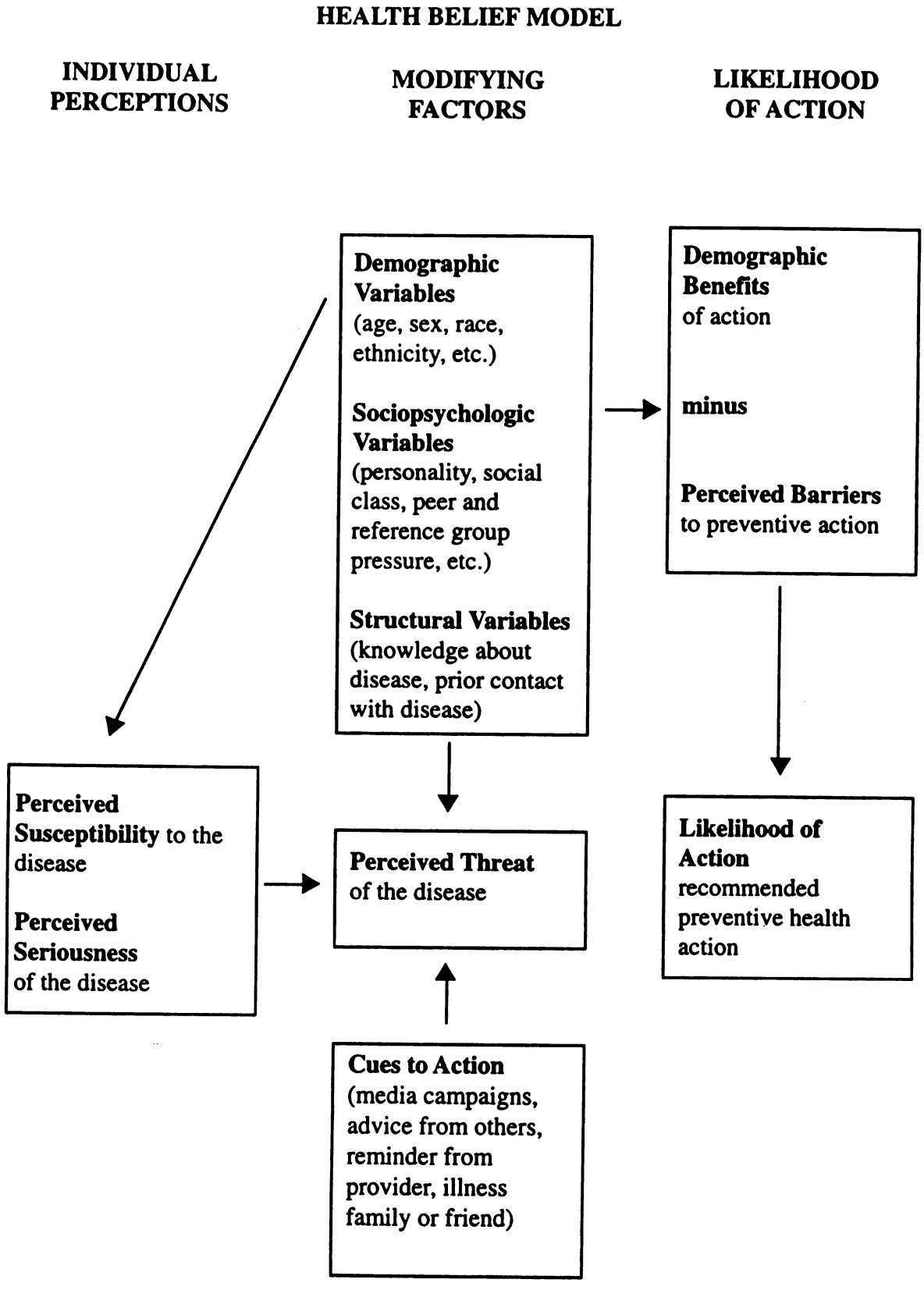

Figure 1. Health Belief Model (Pender, 1996).

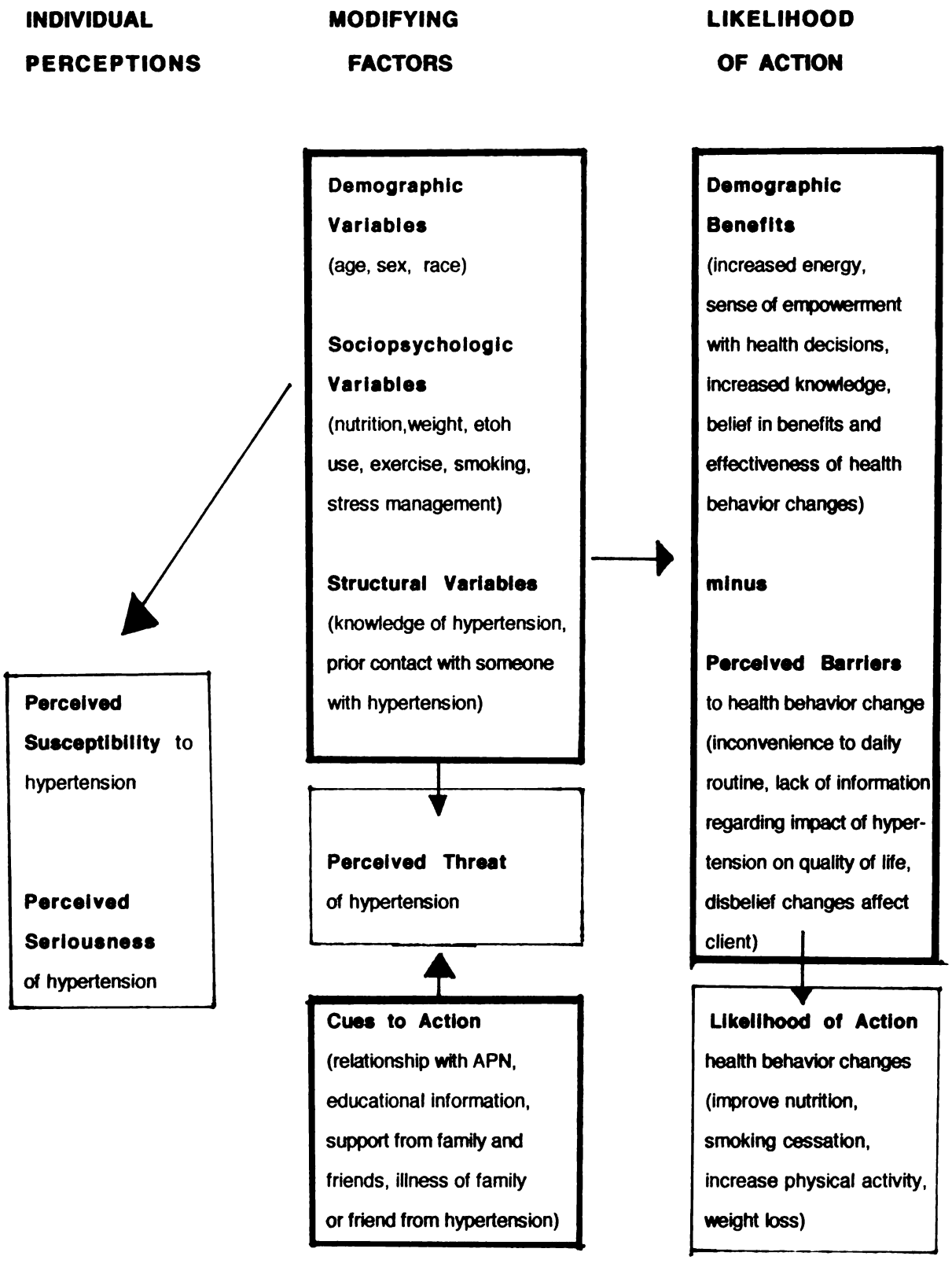

Figure 2. Adapted Health Belief Model for hypertension protocol .

LITERATURE REVIEW

The purpose of the literature review is to examine current research on non pharmacologic treatment modalities for the treatment of Stage I hypertension. Several factors have been identified in the literature review as preceding hypertension in predisposed individuals. These are obesity (almost half of all hypertensive individuals are overweight), sedentary lifestyle, dyslipidemia, excessive use of alcohol, cigarette smoking, and increased dietary sodium in "sodium sensitive hypertensives" (Kaplan, 1993). McCance and Huether (1990) also list family history of hypertension, advancing age, male gender, African-American race, and glucose intolerance (diabetes mellitus) as risk factors. Health behavior change should be the firstline approach in treating uncomplicated Stage I hypertensive clients.

Many studies have been designed to evaluate the treatment of Stage I hypertension without medications and these studies have proven that health behavior change is an effective intervention for treatment and have strongly supported the value of education (Irvine et al, 1986; Thomas, 1989; Rosen et al, 1989; Blake & Beebe, 1991; Fuchs et al, 1993; Johnston et al, 1993; Rabkin, 1994; Alexander et al, 1996).

"Epidemiological and experimental studies suggest that health behavior factors, namely balanced nutrition, satisfactory weight, increased physical activity, relaxation techniques and smoking cessation, play an important role in the prevention and management of atherosclerotic cardiovascular disease, hypertension and hyperlipidemia" (Fuchs et al, 1993, p. 585).

Much research has been directed toward health behavior change in the treatment of Stage I hypertension . The literature identifies several areas of change: nutrition, exercise, weight loss, smoking cessation and stress reduction

(Rosen,1989; Blake & Beebe, 1991; Fuchs et al., 1993; Rabkin, 1994; Liehr et al., 1997). These areas of health behavior change will be incorporated into the protocol for use in the primary care setting, and will provide the focal areas for this review of the literature.

The literature search was very limited in non-pharmacologic treatment of Stage I hypertension. The studies found were very supportive of the treatment approaches designed with a health behavior change in the areas of nutrition, weight loss, and exercise. There is clearly a need for more studies to be done with a larger population to impact the treatment rationales of health care providers.

NUTRITION AND WEIGHT LOSS

There are many studies addressing nutrition relating to hypertension (Rosen, 1989; Johannesson et al., 1991; Blake & Beebe, 1991; Rabkin,1994; Liehr et al., 1997). Sadowski and Redeker (1993) found that decreasing sodium intake to 2,300 mg a day was especially important to the elderly as they were more likely to be salt sensitive. Removing the salt shaker from the table may reduce salt intake about 1 gram a day (Rosenfeld, 1993). Looking for hidden sodium in the diet; avoiding pickled foods, reading the labels on canned goods, avoiding commercial water, checking labels for MSG or soy sauce in commercial foods, and checking labels on frozen foods for sodium content are ways to decrease sodium intake. Rosenfeld suggests flavoring foods with herbs and seasonings instead of salt and cooking fresh vegetables instead of canned or frozen foods as an excellent way to decrease salt intake. Blake and Beebe (1991) found that there was a significant reduction in blood pressure in about 85% of Stage I hypertension when salt intake was less than 75 mEg daily (1gram equals 43 mEq) and found, in one study, about a third of the patients

reduced their antihypertensive medications. Rabkin (1994) says that population studies of areas with decreased sodium intake are statistically significant, but not strong, and suggests that sodium restriction is still effective in some hypertensive individuals and should be recommended. Fuchs et al., (1993) advises collecting a thorough dietary history from the client to find specific areas to address before any counseling begins.

Many studies now suggest that increasing the intake of potassium to about 75 mEq a day has not only been found to decrease elevated blood pressure, but also the incidence of strokes (Rosenfeld, 1995). Supplements can be added to the diet, but intake should be improved by increasing the intake of potassium rich fruits and vegetables. Adequate calcium (1 gm/day) and magnesium (400 mg/day) intake has also been recommended (Kaplan, 1993; Rosenfeld, 1995; Sadowski & Redeker, 1996).

There continues to be copious research on the effects of weight, weight loss and health. The literature search supports forgoing "dieting and instead addresses focusing the client's attention on changing their eating habits and improving nutritional choices; weight loss should be slow and gradual with improved food choices. Fuchs's (1993) program attempted to achieve the goal of satisfactory weight for the individual that is plus or minus 10% of the ideal body weight by balancing nutritional intake.

Fiber is lacking in the American diet and the suggested amount is 30 to 50 grams a day. This can easily be accomplished by eating whole grains, fruits and vegetables in the suggested amount above, or by taking a commercially prepared high fiber product like **Metamucil** or **Fiber One** daily. A decrease of 9% systolic and diastolic blood pressures were found in men and women with a dietary decrease in saturated fat and a high fiber diet (Blake & Beebe, 1991;

Grasser and Craft ,1984, p. 211).

Weight loss with a fat modified diet, coupled with an exercise program had a 4 year decrease in blood pressure that averaged 8.6 mm Hg for both systolic and diastolic blood pressures. Weight reduction therapy is more effective long term than nutrition therapy alone (Liehr et al., 1997). Blake and Beebe (1991) reported reductions of 26 mm Hg in systolic blood pressure and 20 mm Hg in the diastolic blood pressure in overweight clients who lost 20 to 22 pounds. Kaplan (1993) reports that about half of hypertensives are overweight and that blood pressure falls as weight is lost. Increased weight carried in the abdominal area has more impact on health and is more significant for hypertension than just obesity alone. Too much abdominal fat is associated with hyperlipidemia and glucose intolerance (McCance & Heuther, 1990). Glucose accumulates in the blood resulting in increased triglycerides that can eventually cause plaquing of the arteries.

Clients should be counseled to use dietary changes and calorie restriction for promoting weight loss without drugs. Most over the counter medications contain sympathomimetics and prescription weight loss products may have severe side effects. The overall goal in weight loss must be health behavior change and healthy food choices and this cannot be stressed enough when instituting a non pharmacologic treatment program. Rosenfeld (1995) suggests that to determine caloric needs one should allow 10 calories per pound of ideal weight as a basic requirement; add 3 calories per pound for sedentary life style, 5 more calories per pound if you are moderately active, and 10 more calories per pound for a very strenuous, active person.

Balancing nutrition should not necessarily mean weighing and exchanging foods. Improving one's nutrition may mean keeping a diary to

evaluate foods eaten within a predetermined timeframe or providing education so the client can better understand their daily nutrition needs (Fuchs, 1993; Liehr et al., 1997). Providing the client with information on what constitutes a balanced diet incorporating all of the food groups while reinforcing the client's behavior when they make their own healthy choices (Grasser & Craft, 1984). Emphasis should be placed on eating a good breakfast, taking daily multivitamin tablets, avoiding saturated fats (found in animal products), reducing polyunsaturated fats (derived from plants in vegetable oils), including omega-3 fats (found in salt water fish and shellfish) several times a week, eating six portions of whole grain products a day and eating at least seven portions of fruit and vegetables a day (Rosenfeld, 1995).

ALCOHOL

Joint National Committee (VI) states that alcohol is a significant risk factor for hypertension and stroke and suggests that providers should get a thorough history on the client's use of alcohol before beginning counseling on limiting alcohol intake. Alcohol has been found to raise the blood pressure in regular daily consumption of over two ounces a day (Kaplan, 1993). Heavy alcohol use of over three drinks per day has a higher risk of hypertension than moderate users. Persons who abstain have a higher risk of cardiovascular disease and mortality than moderate users of about two to four drinks of alcohol per week (Kaplan, 1993). It is believed that alcohol raises the HDL fraction of cholesterol that protects against plaques accumulating in the artery. Alcohol also protects against increased platelet aggregation within the vessels. Suggested alcohol intake is one or two glasses of wine, one or two mixed drinks, or two beers (each equal one ounce of alcohol per day) a day. Rabkin (1994) states the higher the alcohol intake the higher the blood pressure. Blake

and Beebe (1991) noted that alcohol has a significant effect on blood pressure and should be taken in moderation of one ounce per day.

EXERCISE

Rabkin (1993) says that the physical exercise used in the treatment of hypertension continues to be controversial. Rabkins review of the research noted that some studies show a reduction in blood pressure and some studies do not. The author suggests the studies with reduced blood pressures may be due to changes in body weight during the exercise program. Rabkin also adds that the benefits of continued exercise can affect serum lipids, reduce mortality, improve strength and decrease body weight independent of the effects of improving blood pressure. Fuchs et al. (1993) as well as Blake and Beebe (1991) suggest incorporating increased activities into the client's regular daily schedule to improve chances of long term compliance. The increased physical activity was to be done for at least 20 minutes and the client must increase their heart rate to 60% of the goal heart rate for age. The clients choose the activity and the time, with the emphasis on finding activities that fit into their everyday routines. Blake and Beebe (1991) noted that aerobic exercise and hypertension studies are inadequate, but they noted that systolic and diastolic blood pressure may be reduced about 10 mm Hg with exercise training and that clients with a low level of fitness had increased risk of hypertension. After exercise, vasodilation persists for about 90 minutes and repetitive exercise causes a decrease in plasma norepinephrine, epinephrine, plasma renin activity and plasma viscosity (Blake & Beebe, 1991). Interventions were found to be more effective when used together, the data strongly suggested that both diet and exercise reduced blood pressures in mild to moderate hypertensives (Liehr et al., 1997).

Compliance has been reported to improve to 70 to 90% after a cardiac exercise program included significant others. Adherence to health behavior change improved with programs when caregivers or family were involved and this involvement was felt to be a strong motivator to adhering to the treatment regimen (Sedowski & Redeker, 1996). Alexy (1991) noted that more than 50% of the active members in fitness programs had support from friends or family and that interpersonal factors were strongly related to fitness program success. Social support is clearly influential in any health behavior change program and may be strongly linked to exercise habits. Increasingly studies have found that middle aged persons have increased benefits from exercise training programs (Rosen et al., 1989).

Exercise should be introduced gradually to the client to prevent injuries or demoralization. Joint National Committee VI (1997) suggests that regular aerobic moderate activity, such as walking for thirty minutes most days of the week, can improve the client's health status and enhance weight loss and decrease the risk for cardiovascular disease.

SMOKING CESSATION

Counseling for smoking cessation should be incorporated into every non-pharmacologic treatment program for hypertension. Nicotine is a vasoconstrictor that causes an increase in both systolic and diastolic blood pressures for up to thirty minutes after smoking. There is no tolerance to nicotine stimulation of the sympathetic nervous system (Kaplan, 1993) and cigarette smoking should be avoided.

Hamel and Oberle (1996) noted that smoking trends for women are rising and that smoking is a significant risk factor for both men and women. The effects from smoking result in lower levels of HDL, an increase in platelet

aggregation, and increased blood pressure and heart rate. Hamel and Oberles (1996) notes an immediate decline in cardiovascular risk with smoking cessation.

The Sixth Report of the Joint National Committee (1997) calls smoking a powerful risk factor for cardiovascular disease with a significant rise in blood pressure after each cigarette that is smoked . "The risk for cardiovascular disease in patients with hypertension is determined not only by the level of blood pressure but also by the presence or absence of target organ damage or other risk factors such as smoking, dyslipidema, and diabetes..." (JNC VI, 1997, p. 2419). The Joint National Committee strongly suggests that tobacco in any form must be avoided and that any antihypertensive therapy will not provide adequate protection without smoking cessation.

Novak's (1998) identifies some smoking cessation strategies and estimates the cost to be about 50 billion dollars a year for medical care related to smoking, and identifies smoking as the most significant avoidable cause of illness and death in the United States. However, at least 25% of our society still smokes. It is suggested that APNs (or any health provider) should ask every client if they smoke, flag charts of smokers, provide counseling on smoking cessation with every visit, send home reading material with the client or their family, get a baseline spirometry, and continue to reinforce the benefits of smoking cessation.

The American Cancer Society, the American Lung Association, and the American Heart Association are a few of the agencies that offer classes and informational resources on smoking cessation and this information should be offered to clients who smoke at each visit. "Smokers must be told repeatedly and unambiguously to stop smoking" (JNC VI, 1997, p. 2423).

STRESS MANAGEMENT

The most controversial of all of the non-pharmacologic interventions is stress management and relaxation therapy. Several studies have supported stress reduction (Thomas, 1989; Fuchs et al, 1993; Linden & Chambers, 1994; Alexander et al, 1996) and several have found the benefits of interventions to be transient (Eisenberg et al, 1993; Johnston et al, 1993, Rabkin, 1994; JNC VI, 1997). After reviewing the literature this author believes the most therapeutic value to stress management is helping clients identify stressors and crisis situations in their lives (Thomas, 1989; Alexander et al, 1996; Liehr et al, 1997). Clients should then be taught how to respond effectively with a minimum of distress to those situations that cause one's blood pressure to elevate for extended periods of time. Individualized programs tailored to the client's needs and guided by behavioral frameworks are effective in blood pressure reduction (Linden & Chambers, 1994). Liehr et al. (1997) used continuous blood pressure measurements with a Dinamapp cuff during teaching and counseling sessions directed by APNs to educate clients on the effects of their emotions on their body. After the client identifies the triggers and understands how their bodies respond, health behavior changes may be learned. Rosen et al. (1989) included mental imagery, breathing control exercises, muscle relaxation techniques, yoga, meditation and biofeedback training in their stress management program. The program in Rosen's study (1989) were also individualized to meet the clients' needs. The study used combinations of techniques with group and family support systems. Rosen's study emphasized the need for frequent contacts with the staff and positive reinforcements (although these were not identified) for the client. These interventions should be added sequentially so as not to "stress out" the client with too may health

behavior modifications.

A study done with 127 male and female subjects for stress reduction in hypertensive African-Americans between 55 and 85 years of age found that Transcendental Meditation was more effective in reducing both systolic and diastolic blood pressure than muscle relaxation and lifestyle education groups (Alexander et al, 1996). The subjects practiced stress reduction techniques (Transcendental Meditation and progressive muscle relaxation therapy) at home for 20 minutes twice a day without a change in lifestyle. Instruction was done over one week with several 1.5 hour monthly follow up sessions. The blood pressure reduction was significantly greater and compliance was higher with this technique. Alexander et al (1996) believed that psychosocial stress and maladaptive behavioral responses increased the incidence of cardiovascular and sympathetic reaction to stressors in African-Americans and that stress reduction was essential for this particular population.

In a study conducted by Irvine et al. (1986) 32 male and female subjects between 34 and 65 years of age found that Patel's relaxation and stress management program (experimental condition) was "superior" to mild physical exercise (control condition) during the study and in the 3 month follow up in reducing the subjects blood pressure. Half of the participants were taking antihypertensive medication. The subjects met for ten one hour a week treatment sessions with a therapist (qualifications were not identified). Two sessions identified the effects of stress on the body and the remaining eight sessions taught relaxation (skin resistance biofeedback to measure stress response) and applied stress management techniques. The physiological and psychological mechanisms were unknown.

Fuchs et al. (1993) incorporated relaxation techniques into their study

along with diet, exercise, weight loss if needed, and smoking cessation. The participants were divided into two modes, individual or group instruction. Initially there was a baseline evaluation of lifestyle and clinical data, then six weeks of intensive instruction with meetings arranged for once a week. The meetings lasted about 30 to 40 minutes with a booster session two to three months later. The team of instructors were comprised of psychologists, dietitians and physical activity instructors. The program was designed around the participants' needs or preferences. Stress reduction was focused on guided imagery, deep breathing exercises with taped cassettes to use at home. In a two year follow up most of the subjects from both modes of instruction in the study had continued the health promotion activities. The authors attributed the high rate of success to the behavioral method of instruction, the individualized lifestyle changes involving the participants' preferences, and very specific instructions on lifestyle changes needed. The authors also suggest that success of a comprehensive program seems to result in better compliance by the client than a program with a single focus.

Thomas (1989) addressed the use of spirituality through Transactional Psychophysiology (TP) therapy in the non-pharmacologic treatment of hypertension. TP therapy involves continuous blood pressure monitoring during one hour sessions between client and nurse to identify the constant fluctuation of blood pressure for the client. The idea of TP is to teach the client how to control their blood pressure during periods of turmoil and thus learn "inner peace". Learning builds on three phases of treatment. Phase 1 focuses on learning observation of self where the client observes the physiological self by monitoring their blood pressures in the sessions and at home. Phase 2 involves the relationship between feelings and changes in the cardiovascular system

and helps clients to learn to recognize their feelings. During Phase 3 the clients and their families attempt to identify current and past areas of their lives that trigger changes in blood pressure. Phase 3 also addresses spiritually; an openness to the existence of "inner peace" and the concept of a higher power within ourselves. The subjects were encouraged to develop this capacity of inner peace through relaxation, exercise, and meditation. Thomas (1989) believes that bringing spirituality into healing and health behavior change positively impacts individuals lives as well as their health.

Much of the research supports the use of many of the interventions discussed above, although a few of the studies (JNC VI, 1997; Rabkin, 1994) are not as supportive of the stress management/relaxation interventions. This may be due to program design or the transitory nature of relaxation. Several studies found that as the client was utilizing relaxation techniques their blood pressure decreases, only to elevate later when their hormones and cardiovascular system respond to emotional situations (Rabkin, 194; Johnson et al., 1993). Several studies have addressed the transient nature of relaxation. Blake & Beebe (1991) used several types of relaxation techniques and introduced the use of spirituality (Thomas, 1989) to augment the intervention resulting in the conclusion that stress reduction was more effective with multiple relaxation strategies.

"As data on the damaging effects of untreated hypertension increase, practice guidelines are increasingly focused on early detection and successful management of blood pressure in the primary care setting" (Sadowski & Redeker, 1996, p. 99). Recommendations by the Sixth Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure (1997) recommends that firstline treatment of Stage I hypertension should be non-

pharmacologic therapies (Irvine et al., 1986 p. 437). Health care providers, health care agencies, and individuals themselves can affect health behavior changes and health promotion with early detection and education. This is clearly a role that can be provided by the APN in the primary care setting because their education is not based on the medical model.

PROJECT DEVELOPMENT

The purpose of the project was to develop a clinical protocol for health education and health behavior change to be used in the primary care setting for the non-pharmacologic treatment of Stage 1 hypertension by the Advanced Practice Nurse (Appendix A, B, C, & D). The project was developed based on the Health Belief Model and a review of the literature. The literature supports the use of non-pharmacologic treatment of Stage I hypertension in individuals without target organ damage and who are willing to pursue health behavior change. Based on the literature review, the protocol will assist the APN in assessment, education and counseling interventions.

The Health Belief Model was used in the project development because it is useful as a guide to the APN in the assessment for risk factors, cues to action and to assist the client in identifying the benefits and barriers to health behavior change. The model was used to assist in the identification of factors that may predict client's use of preventive measures such as risk screening, yearly blood pressure checks when appropriate, or diet changes. The client who takes action places value on a particular outcome (normotensive) and believes the health behavior change will ensure the particular outcome (normotensive & improved quality of life) (Pender, 1996).

This protocol was developed to assist the APN (or any health provider) in following a systematic strategy that allows the client to be a principal participant

in their care. The health behavior assessment form is a loosely structured form that involves a dialogue with the provider and the client for assessment of daily life, living situation, barriers to health behavior change and perceived severity (See Appendix B). This form is used to collect baseline data and as a mechanism for the provider and client to review the client's behavior patterns and responses to everyday living. The Health Behavior Assessment form was designed to be a mechanism for the client and the APN to "get to know one another" and build a rapport so they can design the client's individual health behavior change program together.

The nutrition education, physical activity education, and smoking cessation/stress management form are designed for specific education and counseling in these areas (See Appendix C). The education forms are more detailed and they give the APN a structured counseling format. The APN and the client must decide, based on risk factors and health behaviors, which areas of change need to be pursued. There is an area to address client goals, as well as an area to address the client's barriers to health behavior change.

The client's goal setting and strategy form (Appendix D) is to be used by the client to address areas for change and barriers to change. The client should be instrumental in identifying and designing change strategies, to ensure compliance buy-in to the changes being made in their life (Whetstone & Reid, 1991). This form may be kept by the client to address health behavior issues and concerns outside of the primary care office and returned with the client at each visit.

UTILIZATION OF THE PROTOCOL

The ideal client to use the protocol is an individual who is focused on staying healthy and assumes responsibility for their care. "The patients own

approach to wellness is receiving increasing attention as the potential for self-responsibility in assuming wellness behaviors is recognized as one, if not the most, significant factor determining health status" (Grasser & Craft, 1984, p.216). The client must understand and identify (with assistance from the APN) the risk factors and be willing to examine the health behavior changes that are needed in their everyday life. They must also be willing to examine the barriers and strategies to making identified changes (Whetstone & Reid, 1991). Whetstone (1991) suggests using interviews to define the client's thoughts, perceptions and feelings about the perceived barriers to health behavior change. According to Whetstone (1991) it is also important for the health provider to attempt to understand the motives behind the client's decision to pursue change in an effort to assist the client with health behavior changes (1991). The HBM is designed to evaluate the barriers and beliefs of the client to influence the client's likelihood of taking action. The APN will use the protocol forms (Appendix B, C and D) for the interviewing process. The protocol was developed to look at the client's beliefs and their barriers to change. The client is encouraged to provide strategies, with assistance from the APN, to implement the changes the client wishes to attempt. The goal setting and strategy form (Appendix D) will provide the client with a form to use outside of the office. It can be used to reinforce the health behavior change choices or to look at barriers and strategies they deal with day to day. The purpose of the form is to provide them with a tool to use in their daily activities.

The initial assessment form (Appendix A) will be used for diagnosing Stage I hypertension, having two or three readings at intervals of two weeks or more, taken over one to two months. The client's position and the arm used should be identified on this form. If the blood pressure is elevated it should be

taken in the other arm (and documented) for a comparison. If the blood pressure continues to be elevated at the second visit, the APN will use the assessment form for the physical exam and laboratory studies. The exam will determine if there is target organ damage present; in which case the client would not be appropriate for the protocol. The physical exam includes height, weight, waist circumference, fundoscopic exam, exam for carotid and abdominal bruits or abnormal pulsations, heart and lung sounds, and examination of the extremities for abnormal pulse or edema. The initial lab work should be a urinalysis, complete blood count, biochemistry blood profile, and 12 lead electrocardiogram. The laboratory and physical findings should be within normal range to institute the hypertension protocol (JNC VI, 1997). If the physical exam or lab studies are not within normal limits, the client is not an appropriate candidate for the protocol. If the exam and lab are within normal limits but the lipid profile is not within normal limits, the protocol can be used and the initial lipid profile can be used as a baseline and rechecked in several months (repeat date under lab work section) after instituting the non-pharmacologic treatment protocol. Family history, health history and medications or foods should be evaluated with the initial elevated blood pressures to determine if there is another factor, e.g, an OTC medication (Sudafed or nasal decongestant), illicit drug use or an excessive intake of licorice or alcohol. The APN should question the female client about oral contraceptive use, bearing in mind that estrogen containing oral contraceptives will increase the blood pressure 2 to 4 mm Hg. About 5% of normotensive women will have a diastolic blood pressure rise of 90 mm Hg after abut 5 years of oral contraceptive use and this may be a predisposing factor to hypertension in these women (Kaplan, 1993).

The APN should perform a complete health history which includes the client's family history, health history, dietary evaluation, daily routine and lifestyle habits including amount and level of activity, client's level of knowledge of health behavior and hypertension, and health risk behaviors as well as healthy behaviors. Clients should be questioned regarding prior contact with family or friends with hypertension. The assessment should also include information regarding the clients family relationships, support systems, coping strategies and barriers to change (Appendix A & B). The APN may also focus the interviewing questions on learning style, communication style, and belief systems.

The goals of the hypertensive protocol health behavior changes must be discussed and agreed upon by both APN and client. The client must feel involved in the health behavior changes that will be made in their life. The first session should be informational; evaluating support systems, daily routine, nutrition history, who does the cooking, alcohol intake, use of tobacco, physical activity level, coping style, knowledge of hypertension and risk factors, etc. and should be done in a question and answer setting to build a stronger relationship between the client and APN (Appendix B). It is important for the APN to know who does the cooking and who would be instrumental in encouraging and giving emotional support to the client during daily exercise routines and smoking cessation. Family and friends should be encouraged to be involved as much as possible in education and designing the program. Educational material should be provided to the client. If the client is a smoker they must decide if and how they would like to pursue smoking cessation. If the client wishes to continue to smoke their chart should be flagged and the APN should counsel that client and their family regarding smoking cessation at every visit

(Novak, 1998; JNC VI, 1997; Hamel & Oberle, 1996).

The health behavior change, nutrition education, physical activity education, and smoking cessation/stress management forms (Appendix C) should be used for teaching, counseling and goal setting. The APN may assist the client with goal setting and strategies to meet goals and overcome barriers. Liehr, et al., (1997) found that "multi modal interventions are more effective than unimodal interventions" (p. 14). There is a section on these forms for goal setting and barriers (Appendix B & C). The barrier section should be used to record the client's barriers regarding behavior change. The APN (or health care provider) must keep in mind that barriers may be very different for nutrition, exercise, smoking cessation and stress management. Some barriers may impact others; financial barriers to healthy eating may be impacted by the cost of cigarette smoking and should be addressed with the client. The goals and strategies section is at the bottom and should be used to document what has or needs to be done regarding teaching and information giving and as a future reference for another provider reviewing the chart.

The client's goal setting and strategy form (Appendix D) is a tool for the client to use. Clients can record plans for meeting goals as well as recording weights, achievements, and other information that may be helpful. Clients can use this form in the office as well as at home and should be encouraged to bring the form to each visit.

The visits should be at least every two weeks for a month after the protocol has been initiated, then once a month for two months (Rosen et al., 1989). The client and the provider should mutually determine the appropriate number of visits after the first month. During the first month two visits will be necessary for teaching, counseling, and encouragement to follow through with

health behavior changes. Between visits the APN can make follow up calls for support and the client may be encouraged to call for any concerns or reinforcement. After the last monthly visit the client should be encouraged to return in six months to discuss changes and reevaluate their blood pressure and health behaviors. At the end of two months an abnormal lipid profile can be rechecked for improvement.

EVALUATION OF THE PROTOCOL

The evaluation of this protocol can be done by APNs working in the primary care setting. The APNs can assess the protocols helpfulness and ease of use. A chart review can be done after the protocol has been used in primary care setting for at least 25 clients to determine if the forms are filled out and used correctly and to determine if the client achieves and maintains a normotensive blood pressure. The provider can use the behavior change forms to document client's input that may be useful for future change needed in the protocol. A six month visit, with yearly follow up visits, can also determine if the protocol was effective. A client satisfaction survey may be used for evaluation of the protocol.

Other areas for evaluation of the protocol should be content, use of the tools, the effectiveness of the interviewing process, ease of use for client, and health behavior changes that were more or less effective.

IMPLICATIONS FOR ADVANCED PRACTICE NURSING AND PRIMARY CARE

The protocol was developed for Stage I hypertension but recent literature suggests the protocol should be implemented for High-normal blood pressure (systolic blood pressure of 130-139 mm Hg and diastolic blood pressures of 85-89 mm Hg) readings, as well as for client's with Stage I hypertension , for clients without target organ damage or cardiovascular disease (JNV VI, 1997).

Emphasis in health care today is on cost effective, high quality care and improving the client's quality and quantity of life. The primary care office is the most likely setting for the APN to diagnose the High-normal and Stage I hypertensive. The protocol is a tool for providing hypertension education as well as assist the APN in providing a structured counseling program designed to improve the client's blood pressure for the newly diagnosed client, as well as clients previously diagnosed with High-normal or Stage I hypertension in the practice. The APN can begin counseling the client on health behavior changes that may prevent future morbidity and mortality. "Research evidence suggests that even modest changes in behavior or in the environment (for example, changes in exercise level, dietary habits, medication use, or home environment safety) can significantly reduce morbidity rates and also prevent premature death and disability (Whetstone & Reid, 1991, p. 1344). Health education and counseling may also influence the health behavior of the client's family and friends. Encouraging the client to be a participant may empower them to make healthy choices and be more responsible in their health care decisions. Empowerment is a significant force in health behavior changes and the perceived benefits of having good health may be a powerful influence on health behavior change (Alexy, 1991).

The primary care setting is the ideal place to focus on the benefits of a healthy lifestyle during a routine office visit. The APN can start the education process using the protocol with the initial visit. The Health Belief Model may provide a framework the APN can easily use to determine if the client may benefit from the protocol. Practice guidelines are focusing on early detection, prevention, and management of hypertension in the primary care setting (Sadowski & Redeker, 1996) and Stage I hypertension is the most frequently

reported morbidity-related diagnosis since 1973 (Eisenberg et al., 1993).

The non-pharmacologic treatment protocol can be an effective tool for use with managed care clients. Managed care insurance companies and some Blue Cross insurers are beginning to provide coverage for cost effective, outcome based health care visits that focus on health promotion and disease prevention. The long term cost containment of health behavior change versus using medication to treat the client may require negotiation with the insurance provider for coverage.

There are implications for the APN in the primary care setting when evaluating the female client for hypertension. Hypertension is considered to be the second predictor of coronary heart disease, after age. Hypertension becomes more common in women than men after 50 years of age. Hamel and Oberle (1996) refer to the data obtained from the Framingham, Massachusetts study to document this finding. The APN should be aware of the risk of hypertension and CVD increases and reaches major proportions after 55 years of age (Hamel & Oberle, 1996) and women are about ten years behind men in showing disease symptoms. It is also believed that CVD does not present itself in a typical fashion in women as it does in men and the clinical picture may be very different in women. Prevention and health behavior change are important concerns when caring for women, before menopause, to prevent the onset and progression of hypertension and CVD.

Continuity of care is important in the primary care setting. Using a protocol is helpful to the APN because it allows the provider to reassess the client using a more comprehensive format. The provider can determine what has been done and if the client is responding to health behavior changes with each consecutive visit. Using a loosely structured protocol allows the provider

and client to make changes in the treatment and also provides a guide for other providers in the office to see what has transpired with each visit. The provider will be reminded to look at barriers and strategies with each visit; the protocol was developed with the intention of providing a format for the provider and client to collaborate and brainstorm ideas to improve client compliance with the treatment. The visits will also be more structured and efficient using the protocol. The provider has a reference available in the chart to guide the treatment plan with return visits.

The APN's expertise is necessary in critiquing and modifying the protocol. Evaluating and reevaluating tools to assist and improve health behavior change may be considered a fundamental piece of health care due to changes in reimbursement and capitated care. The health care provider must do more with less and be able to prove what works and what doesn't.

IMPLICATIONS FOR RESEARCH

There are implications for research on the use of health behavior change protocols. The short and long term effects of health behavior changes and their impact on morbidity and mortality should be studied. There is limited research in this area, people are living longer and many client's are concerned about a better quality of life than their elders had. We have impacted our lifespan with better nutrition, improved health care and medications. Today health care providers need to begin to focus more attention on how health behavior change impacts our quantity as well as quality of life.

Few studies have addressed the use of structured protocols in health behavior change. More research is necessary to provide the APN with more information regarding developing, using, and assessing health behavior change protocols. There is a growing interest in using alternative therapy to

pharmacologic treatment. More research is necessary to address which treatments are more effective in normalizing blood pressure, as well as methods to improve the client's ability to make health behavior changes with these treatments.

Hamel and Oberle (1996) believe that research is necessary to explore concerns that the female gender is an independent risk factor and that education, as well as prevention, should be provided to the female client. Historically, health care providers have not taken an aggressive approach when diagnosing and treating hypertension in women.Therefore, it is important for the APN monitor blood pressure, health habits, risk factors, and provide ongoing education to female clients.

IMPLICATIONS FOR EDUCATION

It is important for all health care providers to be aware that High-normal and Stage I hypertension is a major health risk. Basic curriculums of health care education must address the more recent research recommending that practicing providers be aware of the value of the non-pharmacologic approaches for treating High-normal, as well as Stage I, hypertension clients. The Joint National Committee VI (1997) suggests using health behavior change with vigilant blood pressure monitoring when clients do not have clinical cardiovascular disease, target organ damage or risk factors (dyslipidemia, diabetes or smoking) for at least a full year before instituting medication use. Education programs are needed to continually update practicing providers on health behavior change education mechanisms and tools. Providers need to be exploring ways to assist their clients in being more responsible for their health behavior choices. Providers will need to be more aware of available treatments and their effectiveness, and be willing to offer these choices to their

clients.

There are implications for the protocol in providing education to health care providers and students. The protocol is easy to use and provides guidelines in early evaluation of the client for hypertension. This is helpful for new providers, students or a busy office provider.

APPENDICES

APPENDIX A

INITIAL ASSESSMENT FOR STAGE I HYPERTENSION PROTOCOL

Client name________________________DOB_________Sex M__F__Race______

Height___________Weight________________Waist circumference____________

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

Date_______Initial B/P ________B/P after 5 min________R arm__ L arm___ Position b/p taken_______

FAMILY HISTORY____

HEALTH HISTORY____

MEDICATIONS (INCLUDE OTC)____

DATE_____ PHYSICAL ASSESSMENT WNL ABNL COMMENTS

FUNDOSCOPIC____

HEAD____

NECK____

LUNGS____

HEART____

ABDOMEN____

EXTREMITIES____

LAB WORK WNL ABN COMMENTS REPEAT DATE

UA---

LIPID PROFILE____

BIOCHEM PROFILE____

CBC____

12 LEAD EKG____

CLIENT_____________________________

CLIENT_____

APPENDIX B

STAGE I HYPERTENSIVE PROTOCOL
HEALTH BEHAVIOR ASSESSMENT

ASSESSMENT	FINDINGS/DATE
Living and family situation Assess support system and family structure and family dynamics	
Nutrition and diet history Assess diet knowledge, use of sodium, who cooks, if client dines out, weight problems and weight loss techniques, and typical 24 hour diet recall	
Daily/weekly alcohol intake	
History of tobacco use Pack/years and efforts to quit, who smokes in the home	
Physical activity level Daily activity (include use of stairs, activity at work), daily exercise, exercise history, preferences for activity, hobbies or out- door activities, home setting, available gym or exercise facility, family or friends who exercise	
Barriers Barriers to health behavior change Strategies to overcome barriers	
Perceived severity Assess knowledge of hypertension and risk factors Discuss normal physiology and disease process,discuss importance of activity, diet, weight, and smoking cessation on client's health	

CLIENT_____

APPENDIX C

STAGE I HYPERTENSION PROTOCOL

HEALTH BEHAVIOR CHANGE and NUTRITION EDUCATION

INFORMATION	CLIENT GOALS	BARRIERS

Discuss effects of diet on blood pressure

Give educational material

1. Sodium effects with strategies to decrease sodium intake (remove table salt, use herbs to season, read labels on packages)

2. Effects of alcohol on B/P
Restrict alcohol intake to one drink per day

3. Increase fluid intake daily

4. Increase intake of fruits and vegetables daily (5 to 7 daily)

5. Increase daily fiber intake

6. Eat 3 balanced meals

7. Keep diet diary and evaluate

8. Dietitian consult (education and meal planning instruction)

9. Weight and waist measurements

Goals and strategies_____

_____

_____

Plan for next visit_____

_____

Client_____

STAGE I HYPERTENSION PROTOCOL

HEALTH BEHAVIOR CHANGE and PHYSICAL ACTIVITY EDUCATION

INFORMATION	CLIENT GOALS	BARRIERS
Discuss the effects of physical activity on body and benefits of increased activity (increased muscle mass and activity tolerance, increase in calories burned and increase in metabolism)		
Discuss types of physical activity		
Discuss appropriate attire and body warm up/cool down checking pulse		
Discuss strategies for goal setting and completing activity		
Discuss safety instructions		

Goals and strategies_____

_____

Plan for next visit_____

_____

Client_____

STAGE I HYPERTENSION PROTOCOL
HEALTH BEHAVIOR CHANGE
and SMOKING CESSATION/STRESS MANAGEMENT EDUCATION

INFORMATION	CLIENT GOALS	BARRIERS
SMOKING		
Get tobacco history past attempts to quit		
Discuss effects of smoking on health and costs/hazards		
Discuss smoking cessation programs available and give client education material		
Discuss triggers for smoking		
Discuss strategies for quitting		
STRESS MANAGEMENT		
Discuss effects of stress on a person's health		
Discuss past stress management techniques		
Give stress management education material		
Review stress reduction strategies: 1 Visualization and mental imagery 2 Meditation or breathing exercises 3 Aroma or music therapy 4 Yoga 5 Biofeedback training and muscle relaxation 6 Daily journal keeping of situations that upset the client		

Goals and strategies_____
_____

Plan for next visit_____
_____

Client_____

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