THE ROLE OF THE ADVANCED PRACTICE NURSE IN A PRIMARY CARE LIPID PROGRAM

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MARY ELLEN YEALIN

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By

Mary Ellen Yealin

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ABSTRACT

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Heart disease has been identified as the United States number one health problem. Research consistently shows that some of the risks that increase the incidence of heart disease are modifiable, and that management of these risks is the key to coronary artery disease prevention. Dyslipidemia has been identified as a strong but modifiable risk factor in the development of heart disease and this risk is compounded in the presence of other identified risks factors. The National Cholesterol Education Program was published in 1988, and updated in 1993, to give guidelines for the treatment of various dyslipidemias. This paper will utilize these guidelines as the foundation for the development of the advanced practice nurse role in a lipid modification program within a primary family practice. The Theory of Goal Attainment developed by Imogene King will serve as the conceptual framework for this program. The Transtheoretical Model of Stage-Based Change will also be used as a basis for nursing interventions.

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INTRODUCTION

Heart disease has been identified as our nation's number one health problem (NCEP, 1993; Brown, 1996). Deaths due to cardiac disease are estimated to be at least 500,000 persons annually (NCEP, 1993; Ziajka, 1995). Millions are disabled each year due to cardiac problems, such as myocardial infarction, congestive heart failure and angina. Costs associated with heart disease exceed $100 billion annually, due to lost wages and medical treatment (NCEP, 1993). Multiple studies have identified risk factors that may increase likelihood of cardiac related illness. While some risks outweigh others, multiple risks increase the possibility of developing heart disease in a linear pattern (NCEP, 1993). Risk factors that have been identified include those that are not amenable to change, and those that can, at least partially, be controlled. Lifestyle changes and/or the institution of medical therapy have been shown to be extremely effective in decreasing a person's risk for heart disease.

Nonmodifiable risk factors include age, sex, ethnicity and family history of heart disease. Modifiable risk factors include cigarette smoking, hypertension, diabetes mellitus, and dyslipidemias. Obesity and a sedentary lifestyle are frequently included as risk factors, but have not been directly linked to the development of heart disease. However, people with these characteristics frequently have hypertension, dyslipidemias, and possibly glucose intolerance if not diabetes, and therefore are more likely to be found in the high risk population (NCEP, 1993).

Dyslipidemia has long been identified as a risk factor associated with the development of heart disease. Primary dyslipidemia is a condition that may include

elevated low density lipoproteins (LDL) or triglycerides, or too low levels of high density lipoproteins (HDL) due to genetic influence and current risk factors. Secondary causes of dyslipidemias include hypothyroidism, diabetes, and some medications. Management of secondary factors is often sufficient treatment to correct abnormalities.

LIPID INTERVENTION

Lipid abnormalities have clearly been associated with increased risk for cardiovascular disease. Numerous studies have shown that interventions which decrease LDL cholesterol are very effective in preventing cardiac disease and sudden death due to cardiac disease (Braunwald, 1997; NCEP, 1993). Aggressive treatment for those persons with established coronary artery disease has also been shown to dramatically reduce future cardiac events (Brown, 1996; Davidson, 1996). Despite this convincing evidence, studies that monitor physician compliance have shown that lipid abnormalities are not treated adequately, and are sometimes ignored (Levins & Ornstein, 1990; Ziajka, 1995). This lack of treatment occurs despite the fact that the National Cholesterol Education Program (NCEP) guidelines were established and made widely available.

The National Cholesterol Education Program was developed by an expert panel formed to create guidelines for the treatment of dyslipidemias, as well as other risk factors that contribute to the development of heart disease. The group published their first report of recommendations in 1988, and later updated and revised some of the recommendations in 1993. The second report is still utilized and widely available for both health professionals and the general public.

Lipid programs are often associated with a larger clinic, specialty office or university program. Referrals may come from within a large practice, and other clinics get their referrals from the community. One established lipid program director estimated that a primary care office with eight or more providers could support a full time lipid clinic based on internal referrals alone (Ziajka, 1995). A well-managed lipid program is often a

profitable undertaking if coding, adherence to insurance guidelines and efficiency are maintained closely (Brown, 1996; Ziajka, 1995).

Clinics dealing specifically with lipid abnormalities have been quite successful in improving cholesterol levels, and thereby lowering CAD risk, through patient education, lifestyle changes (dietary, exercise), and in some cases, medications (Brown, 1996; Ziajka, 1995). Established lipid clinics specifically state that the majority of education, treatment, and monitoring of patients within the clinic can be efficiently and cost effectively managed by nurses at various levels (Brown, 1996; Ziajka, 1995; NCEP, 1993). The advanced practice nurse role within the lipid modification clinic will be the focus of this paper.

STATEMENT OF PROBLEM

To this date, there is not a lipid program that deals with a primary care population in Kalamazoo, Michigan. The two existing programs are within "cardiac rehabilitation" programs where clients have already been diagnosed with heart disease. Currently Kalamazoo has at least 25 cardiologists who work in two local hospitals and several small affiliated hospitals in neighboring towns.

The identified location for the lipid program is a large family practice that has 22 physicians, three physician assistants and one family nurse practitioner. All providers work at offices in Portage, Kalamazoo, Richland and Three Rivers, Michigan. Current active patients (defined as those patients who have had at least one interaction with the clinic in the last three years) are estimated at 60,000. An average of 250 new patients register each month between the four sites. Current estimates of reimbursement type include: private pay insurance, 35%; HMO's, 34%; Medicare,10%; Medicaid, <1%; self-pay, 17% and other, 3%.

General verbal report among providers and preliminary chart audits indicate that lipid abnormalities are frequently not treated according to NCEP guidelines. Possibilities for lack of treatment have been proposed in the literature and include lack of time, lack of

knowledge, and need for frequent follow-up (Ziajka, 1995). A primary care program that monitors cholesterol levels, treatment and response to therapy in a timely manner would greatly benefit our dyslipidemic client population. NCEP guidelines will be utilized and individualized based on the severity of dyslipidemia and coexisting risk factors. Three providers, a full time nurse practitioner (former cardiac nurse), the practice's sole internist, and a dietitian affiliated with the parent hospital have volunteered to develop, implement and participate in a lipid program within the practice.

The APN interventions will be based on King's Goal Attainment Theory and the Transtheoretical Model of Change. Interventions based on these theories are expected to bring about behavioral changes that will positively influence clients' lipid profiles and, therefore, decrease their risk for heart disease. Interventions will also focus on other modifiable, associated risk factors for the development of heart disease.

Chapter 1

CONCEPTUAL FRAMEWORK

Imogene King's Goal Attainment Theory will serve as a conceptual framework for APN interventions in the lipid program. The theory is particularly appropriate because of its heavy emphasis on goal attainment, interactions and transactions, which will be the basis for lipid management. King's definition of health is as follows:

> dynamic life experiences of a human being, which implies continuous adjustment to stressors in the internal and external environment through optimum use of one's own resources to achieve maximum potential for daily living (King, 1981, p. 141).

This definition is important as it points out internal stressors (physical illness) and external stressors (multiple role demands) that are involved in one's definition of health. Provision of resources to adjust to these stressors (education, exercise, low-fat, low-cholesterol diet, etc.) in addition to improving physical health will be attempted.

King considers three areas in an individual's social system that interact simultaneously . The first area is the "personal system" which she defines as "A unified, complex, whole self who perceives, thinks, desires, imagines, decides, identifies goals and selects means to achieve them " (King, 1981, p. 41). A related concept of specific importance within King's theory is perception. Perception is described as a process of organizing, interpreting and transforming information from sense, data and memory. It is a process of human transaction with the environment. It gives meaning to one's experience, represents one's image of reality and influences one's behavior (King, 1981).

The second area that King describes in the social system is the "interpersonal system". The interpersonal system is defined as "a system of two, three, or more individuals interacting in a given situation" (King , 1981, p. 141). According to King's theory another component of the theory is interaction, a process of perception and communication between persons and environment that may consist of goal-directed verbal and nonverbal behaviors. Interactions are influenced by knowledge, needs, goals, past experiences and perceptions. Communication occurs when information is given from one person to another, directly or indirectly, and is also the vehicle for maintenance of human relationships. Transactions are a goal-directed process of interaction in which human beings communicate with the environment to achieve goals that are valued. Role is a concept comprised of three elements: a set of behaviors expected when occupying a position in a social system, rules or procedures defining rights and obligations in a position in an organization; and a relationship with specific situations for a purpose. Stress is a dynamic state in which a person interacts with the environment to maintain balance for growth, development and performance which involves energy exchange and information regulation and control of stressors (King, 1981).

The last area of King's interacting system is the "social system" or society. Several concepts are also inherent to this theory. An "organization" is composed of human beings who have prescribed roles and positions; they use resources to accomplish personal and organizational goals. Authority is described as a transactional process whereby recognition, acceptance and compliance results from active reciprocal relations in which members' values, background and perception define and accept authority. Power is a process by which one or more persons influence another in a situation. Status is a position of an individual in a group or a group in relation to other groups in an organization. Decision making occurs through a dynamic and systematic process by which goal directed choices are made by an individual or group (King, 1981).

The three systems relate to each other in the following manner. Interaction leads to transaction. Interaction occurs when individuals mutually identify goals, as well as means to achieve them. Interactions are composed of a communication and transaction component. When they agree to the means to implement the goals, they move towards transactions. Transactions are the processes that are goal directed. First the informational component of interactions can be observed as communication. Second, the valuational component of interactions can be observed as transaction because one obviously values a goal, identifies means to achieve it and takes action to attain it. Stress is reduced when the action stage of transactions are made (Fawcett, 1989) (See Figure 1).

A typical representation of this with the lipid clinic may be as follows: A client has an abnormal lipid profile and her provider has recommended enrollment in the lipid clinic. The patient enrolls and meets with the APN, who further explains lipid abnormalities, etiologies, treatments, etc. (interaction). Identification of goals to reduce lipids takes place between the lipid provider and patient (communication/transaction). Actual changes on behalf of the patient due to the transaction-- changes in diet, exercise, etc., are considered action/transaction. At the next interaction, reevaluation of lipid goals takes place after response has been ascertained (compliance with diet, changes in lipid levels, routine exercise), as well as concerns of the client and provider's are addressed (feedback).

Because so many of the actual interventions in the lipid program involve effort by the client, the goal attainment theory is of particular importance. The clients are expected to be a active participants and must share in the goal-setting process. Because they must also perceive their abnormal lipids as a health risk, interactions must take place on a regular basis to reevaluate their understanding and actions to carry out goal attainment. Addressing clients' concerns and continually setting goals is imperative for program success.

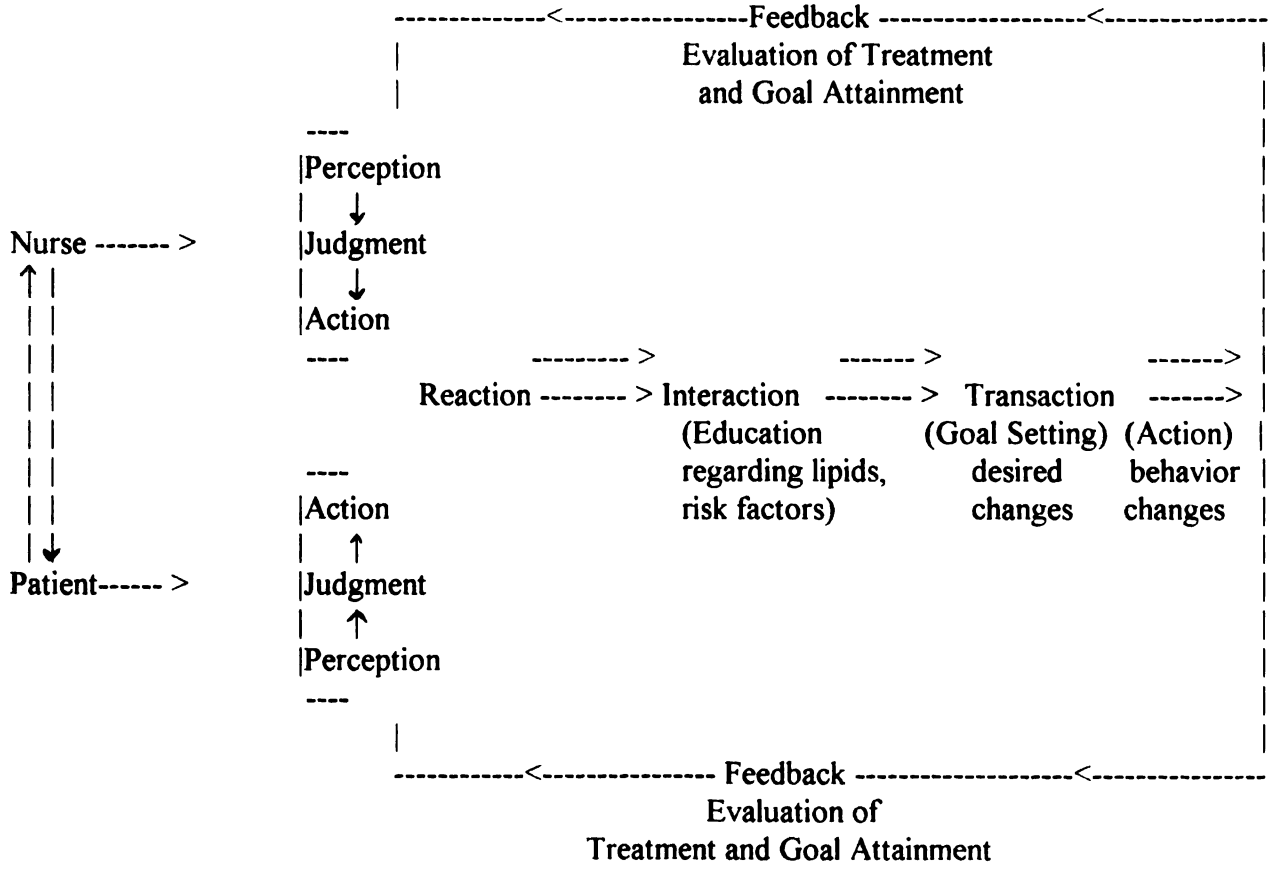

Figure 1: A PROCESS OF HUMAN INTERACTIONS
Adapted from: The Goal Attainment Theory (King, I. M., 1971).

CHANGE THEORY

Prochaska's Transtheoretical Model of Change or "Stage-Based" approach will be utilized as a theoretical framework in this clinic. This theory describes five stages of readiness that people progress through when changing their health behavior. These stages are cyclical, as clients tend to progress through stages as they move closer to their goal; however, they may regress to any of the preceding stages at any given time (Conn, 1994; Keller, 1997; Prochaska, 1992) (See Figure 2). Clients may enter the program at any stage of change, and the APN will need to determine what stage the individual is in prior to implementing a treatment plan. The planned interventions will be directly related to the client's current stage (See Figure 3). Interventions that have been based on incorrectly assessed stages have been consistently shown to be ineffective in promoting behavior change (Prochaska, 1992) (See Figure 4).

The stages in the theory begin with the "precontemplation" stage. In this stage clients are not giving serious thought to adopting any behavior change. They cannot see the benefit of their behavior change and do not think the benefit will outweigh the effort of making the change. Their lack of interest may result from having inadequate information about their health risk (Conn, 1994). Clients may be in this stage prior to entering the lipid program and may not enroll due to this reason. Evaluation of client knowledge regarding dyslipidemias and heart disease, as well as providing education, would be an important intervention during this time.

In the "contemplation" stage, clients are starting to give serious thought to change. They actively seek information that supports the merit of the desired behavior. This is the stage where clients may state they are planning to change in the near future (Cassidy, 1997; Conn, 1994; Prochaska, 1992). Clients may have received information about dyslipidemia, or have some knowledge or experience with lipid abnormalities or heart disease that motivates their behavior. They are more likely to enroll in the lipid program during this stage.

During the "preparation" stage clients begin to prepare for behavior change. They accept that the benefits of behavior change will outweigh the risks of not changing. They may begin to make small changes in their behavior and consider other changes leading to the desired behavior (Cassidy, 1997; Champion, 1994; Conn, 1994). This stage may take place at the first clinic intervention and include goal setting for behavior changes.

The "action" stage describes the period when clients are actively using strategies to change their undesired behaviors to the desired behaviors. New routines are developed that support new behavior changes (Conn, 1994). This stage would likely follow the early interventions and dietary consultation. Frequent interventions to support new behavior and prevent relapse are necessary (Hecht et al, 1994).

The "maintenance" stage involves the integration of behavioral changes into everyday lifestyle. Individuals stay in this phase until they no longer feel the temptation to regress to old behaviors (Conn, 1994). Clients who sometimes struggle with exercise regimens, dietary changes or new medication routines, but are usually successful in carrying them out, would be in this stage. Continued support during this stage is important because relapse is common (Conn, 1994; Hecht et al, 1994).

"Relapse" refers to regression to an earlier stage and may occur at any time in the change process. Progression through the change stages without relapse is considered very unusual. Clients often return to the "contemplation" or "preparation" stage despite having successfully reached the "action" or "maintenance" stage of the desired behavior change (Conn, 1994; Prochaska et al, 1992). Because regression can occur at any time, and the client may return to any stage, the APN needs to evaluate to which stage the client has regressed. The individual who has frequent relapses may need more frequent interventions such as phone calls, dietitian visits, etc., to promote advancement tot he next stage.

Because this is a voluntary, outpatient program, clients may drop out of the program if they feel the advantages of behavior change do not outweigh the disadvantages. Reassurance for those clients who feel "relapse" is failure will be

important. Studies that utilize the Transtheoretical Model have shown that numerous attempts to change behavior are often necessary to bring about permanent change (Prochaska, 1992).

Because of the heavy emphasis on changing clients' behaviors, the Transtheoretical Model of Change is a conceptual framework that will assist the APN to assess and intervene in an effective manner. This theory and King's Goal Attainment Theory will complement each other when planning and implementing nursing interventions.

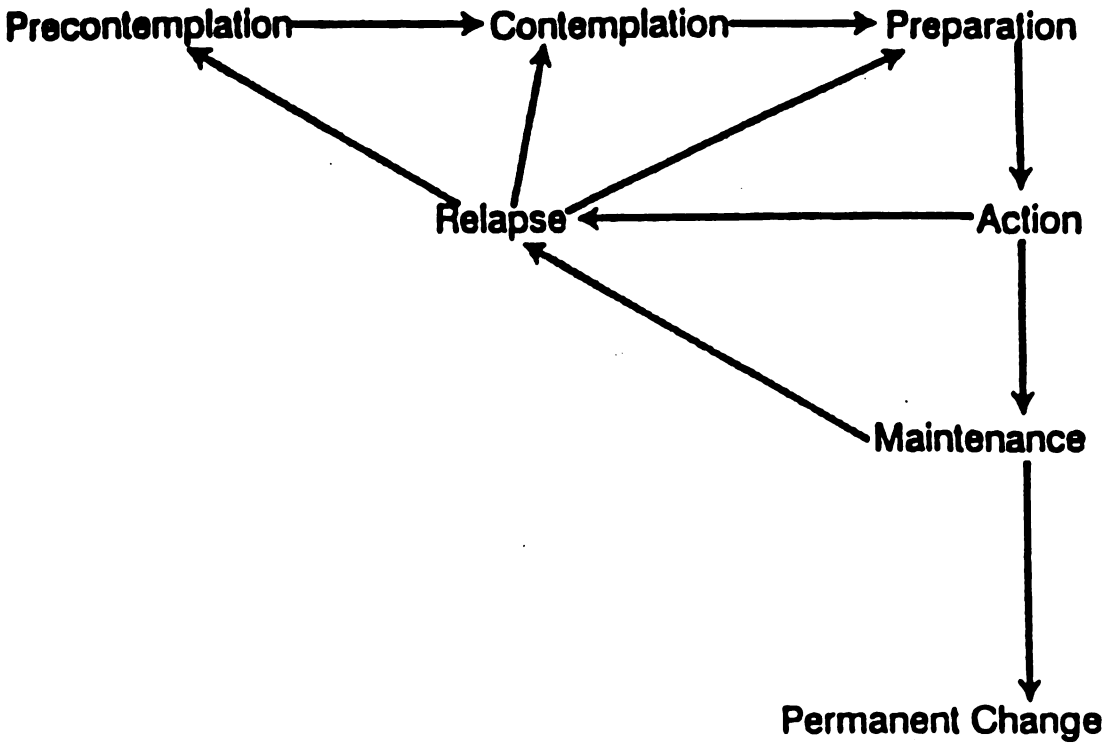

Figure 2: STAGES OF HEALTH BEHAVIOR CHANGE

Adapted from: Prochaska and DiClemente, 1992.

STAGES OF CHANGE

Precontemplators: Initial question "Have you thought about making any changes that may improve your cholesterol levels or health in the next 6 months? Those individuals who respond negatively are considered to be in the "precontemplation" stage.

Contemplators: Those individuals who respond positively to the above question are asked, "Do you intend to make any of these changes in the next 30 days? Those that are seriously planning change, but not within the next 30 days are "contemplators".

Preparation Stage: Those individuals who are planning behavior change and are planning to do so in the next 30 days are in the "preparation" stage.

Action Stage: Those individuals who have answered positively to the above questions and also indicate that they have already made behavior changes to improve lipids or their health status but have done so for less than six months are in the "action" stage.

Maintenance Stage: Those individuals who have sustained their behavior change over six months are in the "maintenance" stage.

Figure 3: EVALUATION OF CLIENT'S "STAGE OF CHANGE" ACCORDING TO THE TRANSTHEORETICAL MODEL OF BEHAVIOR CHANGE

Adapted from: C. Cassidy, 1997

Change Process	Interventions	Stages
Consciousness Raising: acquisition of information about health behavior change	Provide personalized information about illness & desired behavior changes	Precontemplation Contemplation
Self Liberation: Choosing between behaviors	Provide feedback on prior changes in client's life	Precontemplation Contemplation Preparation
Social Liberation: when individuals begin to notice social consequences of continued unhealthy behavior	Encourage identification of social pressures toward positive health behaviors	Contemplation Preparation
Self Reevaluation: when individuals assess how they feel about a behavior	Values clarification exercises b/t desired & current behavior	Contemplation Preparation
Counterconditioning: substitution of activities to fill void of old behavior	Teach relaxation exercises	Preparation Action
Stimulus Control: remove stimuli of old behavior & add new ones	Help identify triggers to old behavior, remove stimuli	Preparation, Action, Maintenance
Contingency Management: rewarding desired behaviors	Assist client to identify rewards for new behaviors	Preparation, Action, Maintenance
Catharsis: expressing emotions related to their behavior change	Encourage clients to express feelings about change	Contemplation, Preparation Action
Helping Relationships: professional or supportive social networks that assist individual to change	Help identify support that will encourage behavior change	Preparation, Action, Maintenance

Figure 4: ASSISTING HEALTH BEHAVIOR CHANGE

Adapted from V. Conn, 1994

Chapter 2

LITERATURE REVIEW

A review of the existing literature related to lipid programs based on the NCEP guidelines leads to the conclusion that these guidelines are effective in decreasing risk for the development of heart disease. Review of existing literature in relation to the advanced practice nurses in primary care and illness prevention has also shown that the role is both effective and cost efficient. There is limited, though supportive research available on the use of an APN as a leadership role within a lipid program.

LIPID PROGRAMS

Lipid clinics were initially developed in the 1960's and existed virtually only in large university settings (Ziakja, 1995). However, since the development of the National Cholesterol Education Program guidelines in 1988, and revised in 1993, there has been a considerable interest in treating dyslipidemias (Ziakja, 1995). According to A. Brown MD of the Midwest Heart Lipid Clinic, the current trend is to treat dyslipidemias before heart events have taken place, thereby significantly decreasing the incidence of the number one health problem in the United States (Brown, 1996). This thought is also reflected in an article by S. Grundy MD (1997), who optimistically speculates that the 21st century will be the end of heart disease as it is currently known. He asserts that only through primary prevention will this drastic change take place. He also fully supports the NCEP guidelines as a basis for treatment of dyslipidemias.

According to several sources the utilization of APN's in lipid programs is effective, cost efficient and provides a high level of patient satisfaction (Brown, 1996; Cofer, 1996;

Rudd, 1994; Ziakja, 1995). Patient satisfaction has been an important outcome measurement, studies have shown that "patients that are more involved in their care and are more satisfied are more likely to comply with treatment plans" (Naylor, 1991, p. 213). Cost effectiveness has been proven in existing clinics, as APN's tend to generate revenue similar to that of a physician at a fraction of the cost in terms of salary (Ziakja, 1995).

APN ROLE

Access to high quality, cost effective healthcare has become a major issue for both governmental agencies and the public sector. Pursuit of this care has led to the concept of "primary care". Several definitions of primary care exists in current health care literature. According to A.I. O'Flynn (1996), one definition of primary care "is a provider-driven health care that focuses on aspects of gatekeeper, continuity, prevention, promotion, treatment, and referral when appropriate" (p. 431). On the other hand, J. Goeppinger (1996) (while acknowledging multiple definitions), states "Primary care has continued to mean a basic level of healthcare usually provided in an outpatient setting, that emphasizes a patient's general health needs. The most frequently emphasized aspects are first-contact professional care that is accessible, comprehensive, coordinated, continuous and accountable" (p. 65). The latter definition was also utilized in a landmark article regarding the APN role by B.J. Safriet, in the Yale Journal of Regulation in 1992. Yet another, more holistic, definition of primary care that includes the concept of community, developed by the Institute of Medicine interim report is "the provision of integrated, accessible healthcare services by clinicians who are accountable for addressing a large majority of personal healthcare needs, developing a sustained partnership with patients, and practicing in the contexts of family and community" (Venegoni, 1996, p. 255). A less acceptable, though popular definition of "primary care" is the "usual source of care" according to J. Goeppinger (1996, p.65).

"Wellness" or "absence of illness" are major goals in today's healthcare system. Almost all literature regarding the role of the APN includes emphasis on health promotion and illness prevention. An article that discusses the APN and physician assistants as "physician substitutes" notes that APN productivity is not only acceptable, but that APN's have the added benefit of "other services, including prevention, patient education and counseling" (Scheffler et al, 1996, p. 213). Another author refers to the APN role more adeptly, "NP's have personal contact with individuals, families, groups, and other members of the interdisciplinary team. They provide primary healthcare that emphasizes health promotion, disease prevention, early detection, diagnosis, prescription, and implementation of a course of treatment" (Berger et al, 1996, p. 253).

Attempts to control skyrocketing costs in the delivery of healthcare have led to prospective payment programs leading to the concept of "managed care systems". It is of interest that managed care has become a major trend in the United States, and that both advanced practice nursing and this system of care share similar principles. While major goals of the current healthcare system includes cost containment and quality care, managed care systems focus on "indicators" to ensure quality (Satinsky, 1996). The Health Care Advisory Board has identified quality indicators when evaluating contracted providers, these include: access to care, appropriateness of care, patient's perception of care, outcome measures, disease management, prevention measures, and enrollee health status measures (Satinsky, 1996). M.I. Satinsky (1996) also believes that by nature of APN training, combined with knowledge of managed care APN's are in an ideal position to assume a variety of important roles. In discussing the current status of healthcare delivery, including managed care, A.I. O'Flynn (1996) states "Advanced practice nurses are the best choice to meet the needs in the most cost effective, holistic manner, while empowering the patient, family, and community in gaining greater control over their health... the past 30 years have taught us that promotion, prevention, and early intervention are cost effective in the long run" (p. 430).

Numerous approaches to decrease out-of-control healthcare expenditures have been proposed, including that of managed care. Cost effectiveness is a frequently recurring theme in today's healthcare arena. Fortunately, multiple studies indicate that the use of APN's in primary care provides both high quality care and cost effectiveness (Safriet, 1992). Two sources cite results of studies that compare outcome evaluations of physicians versus APN's and concluded that APN's scored as well as physicians in provision of healthcare delivery and scored better in areas of patient satisfaction, patient communication and preventive care (Fitzgerald & Wood, 1997; O'Flynn, 1996). Provision of care by an APN has shown to be cost effective related to a decreased costs in comparison with that of a physician. These costs are saved when taking into account education costs, salaries and benefits (Safriet, 1992).

A.G. Gift (1994) further explains costs when evaluating APN-run primary care programs. Her definition of "costs" takes into account the expenses that are involved in program delivery. She describes "direct costs" as those expenses directly related to delivering the program being offered, including salaries and benefits provided for those involved. On the other hand, "indirect costs" are those not directly related to delivering the specific program but rather those resulting from services that are shared by many departments in an institution. In those programs that generate revenue, a comparison of both indirect and direct costs compared with revenue generated will give the best indicator of cost effectiveness. These factors will be important in the development and evaluation of the lipid program.

The ability to demonstrate quantifiable outcomes is essential to justify the utilization of APN's over other healthcare providers. Outcome measures are important indicators of healthcare effectiveness and quality and are also essential to the advancement of nursing as a science (Harris & Warren, 1995). While authors seem to agree on the critical need for "standardized, retrievable data collected by nurses", they also acknowledge the difficulty in devising assessment tools and a documentation process

that is universal in nursing (Harris & Warren, 1995; Nugent & Lambert, 1997). Nursing researchers also agree that the traditional outcome measures-- patient mortality, morbidity, and patient length of stay, are not appropriate and significantly limit evaluation of APN outcomes (Harris & Warren, 1995; Naylor et al, 1991; Nugent & Lambert, 1997). Proposed outcome measures that reflect APN interventions have been proposed, these variables include functional status, mental status, stress level, satisfaction with care, burden of care and cost of care (Naylor et al, 1994; Nugent & Lambert, 1997).

According to Nugent & Lambert (1997) these indicators may be appropriate in some circumstances, they will not be applicable in all cases. For instance, clinical outcomes will need to be evaluated in the lipid program and must be included as a portion of the APN interventions. Functional status and mental status will unlikely be included in clients' outcome measurements in the lipid program. Furthermore, assessing the "cost" to the client is fairly straight forward, while evaluating effectiveness of an intervention can be far more difficult. Problems with evaluating effectiveness of interventions were described by Nugent & Lambert (1997): the most frequently used outcomes are relatively insensitive, occurring infrequently; final outcomes are frequently unknown until long after the provider no longer has contact with the patient; outcomes can be influenced by factors outside the control of the healthcare system; information about many outcomes is not readily available in the clinical records; and few lists of valid effectiveness criteria and measurement methods exist.

Healthcare providers who excel in assisting individuals with behavior change play an important role in today's healthcare. The APN as a change agent is well documented and supported in the literature. There is also substantial information about APN's use of the Transtheoretical Model of Change as the basis for APN interventions. In a study that utilized nurses as educators and counselors in smoking cessation, with interventions based on this "stage based" model, Hecht et al (1994) established that nursing interventions had a major impact on behavior change (smoking cessation) when utilizing a "team approach".

In an interesting article by V.L. Champion (1994), the Health Belief Model and the Transtheoretical Model were combined in an attempt to predict and improve the use of mammography for cancer detection. This was the only study that combined two approaches that was reviewed. While it appeared to be a useful combination in predicting behavior change based on "perception of severity of illness" and stage of change, the study acknowledges significant limitations including sample size, lack of cultural variation, and lack of financial diversity. Though limited, it does provide support for further research in these areas combining conceptual and theoretical frameworks. V.S. Conn (1994) clearly supports the APN as the "ideal health care provider to deal with health behavior change", based on APN subroles (clinician, educator, consultant, researcher, and administrator) and interventions utilized in the Transtheoretical Model (p. 192).

The teaching role of the APN is of utmost importance when attempting to influence behavior change. According to B.K. Redman & S.A. Thomas (1992), patient teaching "is an interpersonal intervention that uses stimuli in the environment or creates new ones to help the patient develop new thoughts, skills, attitudes, intentions and feelings of self efficacy, usually in combination, that are permanent enough to be useful in behavioral change" (p. 304). In an article by A.M. Berger et al (1996), it concludes that the teaching skills of the MSN prepared APN are superior to those nurses with less education, thus further supporting their view of the "expert educator" role of the APN. An article by Scheffler et al (1996) points out that the role as educator and counselor that sets the APN apart from other health care providers (physicians and physician assistants). The review of literature fully supports the teaching role as a unique and essential aspect of behavior change.

The APN role as a counselor encompasses many education principles. It is "goal-directed", but focuses on emotional support in the APN-client relationship. In the role as counselor the APN helps the client focus on feelings and behaviors that have interfered with usual adoptive behavior (Bulachek & McCloskey, 1992). This role is often

referred to as the "helping role" in APN literature (Fenton, 1993; Hixon, 1996). It is this component of APN intervention that has been linked with higher levels of patient satisfaction in some studies. As described by Naylor et al (1991), "Higher levels of satisfaction with care have been associated with providers or institutions that make care more 'personal'. Good communication skills, empathy, and caring are important predictors of patient satisfaction" (p. 213).

A team approach will be utilized to improve client health status. According to King et al (1996), collaboration is described as "nurses and physicians collaboratively working together, sharing responsibilities for solving problems and making decisions to formulate and carry out plans for patient care" (p. 148). The purpose of collaboration is to enhance patient outcomes that may not occur if services were provided by one provider alone (King, 1996). This belief is also reiterated by K. Jones (1993) who advocates collaboration among health care disciplines stating "no one professional group operates independent in the delivery of services to patients" (p. 149). A.I. O'Flynn (1996) believes that APN's function at their fullest extent when working in collaboration with physicians and other healthcare professionals as a functioning interdisciplinary team.

The role as clinician is a significant role in the lipid program. Studies have conclusively shown that APN's clinical care that includes diagnostic tests, interpersonal management, thoroughness of diagnosis and treatment documentation as well as outcome measures are comparable if not better than that of a physician, except in areas that required technical solutions (Safriet, 1992). According to P. Ziakja (1995) the APN is qualified to handle the vast majority of clinical care in the lipid program.

Chapter 3

PROJECT DEVELOPMENT

The Promed Lipid Modification Program will be based on the National Cholesterol Education Program, Adult Treatment Panel II, guidelines made available in 1993 (See Table 1). LDL cholesterol is the lipid most commonly associated with the development of coronary artery disease, however, very low levels of HDL cholesterol, or elevated levels of triglycerides have also been associated with the development of CAD. These lipid abnormalities, along with other risk factors can increase the likelihood of coronary artery disease development (See Table 2).

Development of the lipid program at Promed Family Practice will begin with a pilot phase. During this phase, a small number of clients (approximately 50), will be identified prior to opening the option to all clients with dyslipidemia. During this time, procedures including initial evaluation, dietary intervention, goal setting, medical intervention, follow up and patient feedback will be monitored and adjusted according to client, staff and outcome evaluations.

Table 1

Treatment Decisions Based on LDL-Cholesterol Level

	Initiation Level	LDL Goal
	Dietary Therapy	
Without CHD and with fewer than two risk factors	≥ 160 mg/dL	< 160 mg/dL
Without CHD and with two or more risk factors	≥ 130 mg/dL	< 130 mg/dL
With CHD	≥ 100 mg/dL	≤ 100 mg/dL
	Drug Therapy *	
Without CHD and with fewer than two risk factors	≥ 190 mg/dL	< 160 mg/dL
Without CHD and with two or more risk factors	≥ 160 mg/dL	> 130 mg/dL
With CHD	≥ 130 mg/dL**	≤ 100 mg/dL

* If an initial trial of dietary therapy has not been adequate, drug therapy should be added to dietary therapy, not substituted for it.

** In CHD patients with LDL-cholesterol 100-129 mg/dL, provider should exercise clinical judgment in deciding whether to initiate drug treatment.

Adapted from NCEP, 1993.

Table 2

Risk Factors for Heart Disease Other than LDL Cholesterol

Positive Risk Factors	
Age: Male ≥ 45 years Female ≥ 55 years or premature menopause without estrogen replacement therapy	**Diabetes mellitus**
Family history of premature CAD (definite myocardial infarction or sudden death before age 55 in male or before age 65 in female first-degree relatives)	**Current cigarette smoking**
Hypertension (blood pressure ≥ 140/90 mm Hg or on antihypertensive medication)	**Low HDL cholesterol (<35 mg/dL)**
Negative Risk Factors	
High HDL cholesterol (if HDL cholesterol is ≥ 60 mg/dL subtract one risk factor because high HDL cholesterol levels are associated with lower CHD risk)	

Based on the 1993 Adult Treatment Panel II Report of the National Cholesterol Education Program (NCEP).

CLINIC PERSONNEL

Prior to the implementation of the lipid program at Promed Family Practice, personnel must be designated to carry out certain tasks. While these positions may be adjusted as the pilot program progresses, an overview of job responsibilities are as follows.

The clinic director will be an APN certified as a Family Nurse Practitioner. Clinic director responsibilities will include development, organization, coordination and management of the lipid clinic. The director will also direct and participate in patient assessment, patient treatment, education, and promote the program to both other providers and the patient population.

The program will have a medical director. This person is a board certified internist. Duties and responsibilities will include participation in physical assessment, lipid program development, organization, and problem solving with the APN and dietitian for clients with severe dyslipidemias.

The dietitian involved in the lipid program will have extensive knowledge and experience with the NCEP recommendations. She will be responsible for nutritional assessment and evaluation, and expected to be knowledgeable in relevant cultural differences in diet. Education regarding the NCEP Step I or Step II diet (See Table 3), or more fat restricted diets, will take place through one-on-one counseling and in special classes designed for the lipid clinic participants.

The executive director is an individual from Promed administration who will oversee the financial aspects involved in this program. As the program is not anticipated to generate funds initially, the advantages to the practice through marketing to the HMO's and private insurances will be pursued and evaluated.

The clinic director, dietitian, and medical director will work together in developing policies and procedures and in refining the lipid program. The clinic director, medical

director and executive director will prepare and maintain a budget, equipment, supplies, and staffing needs.

Clients will enroll voluntarily and will need to contact their insurance regarding coverage. While participating HMO's and Medicare guidelines will be familiar to our clinic, private insurance will need to be contacted by the client. Any uncovered costs are expected to be paid for by the client. Close adherence to guidelines for reimbursement will be monitored within the clinic. Reimbursement should not be a major issue, as the program emphasizes illness prevention (CAD) and dyslipidemia codes exist based on NCEP guidelines.

Table 3 - NCEP Dietary Guidelines

Dietary Therapy of High Blood Cholesterol

Nutrient	Recommended Inake	
	Step I Diet	Step II Diet
Total Fat	30% or less of total calories	
Saturated Fatty Acids	8-10% of total calories	Less than 7% of total calories
Polyunsaturated Fatty Acids	Up to 10% of total calories	
Monounsaturated Fatty Acids	Up to 15% of total calories	
Carbohydrates	55% or more of total calories	
Protein	Approximately 15% of total calories	
Cholesterol	Less than 300 mg/day	Less than 200 mg/day
Total Calories	To achieve and maintain desireable weight	

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CLINIC PROCESS

Enrollment into the Promed Lipid Modification Program will be based on NCEP recommendations. Guidelines determining which treatment protocol will be used are based on level of dyslipidemia and other risk factors. Although this is a prevention focused program, these clients must have some aspect of diagnosed dyslipidemia, such as elevated LDL cholesterol, low HDL cholesterol, elevated triglycerides or two or more risk factors associated with the development of CAD (See Figure 5). For those patients that already have existing coronary heart disease, a second guideline has been developed due to more stringent goals on LDL cholesterol (See Figure 6).

Once clients have enrolled in the Promed Lipid Modification Program, they will begin the program process. Algorithms that focus on APN interventions in the program have been developed. The algorithms that focus on the group without heart disease varies somewhat from the heart disease algorithm due to differences in LDL cholesterol goals (See Figures 7 & 8).

After review of their medical history, all patients will receive a physical exam that focuses on CAD. Emphasis will focus on retinal exams, carotid auscultation, heart evaluation, pulmonary system, peripheral vascular system, electrocardiogram, and will also include inspection for tendon xanthomas, or other overt signs of cholesterol deposition. Clients who have established coronary artery disease or who have several risk factors along with sedentary lifestyles will have an exercise stress test scheduled through the Promed office or with a participating cardiologist office.

Initial visits will include the introduction and review of NCEP guidelines. Clients will be encouraged to discuss their lipid goals and will be given a binder that they are expected to bring to the following visits. The binder will provide various cholesterol information, a chart to keep track of their own progress towards goals and a chart to keep track of exercise and dietary intake. The stage of change will be evaluated during contacts, in the office or via phone. Interventions will be based on their current "stage" of

change, and may include additional office visits with either the APN, physician or dietitian, along with more frequent phone support, or special classes that may be available (e.g. low-fat, low-cholesterol cooking class). Attempts will be made to evaluate and educate at every intervention.

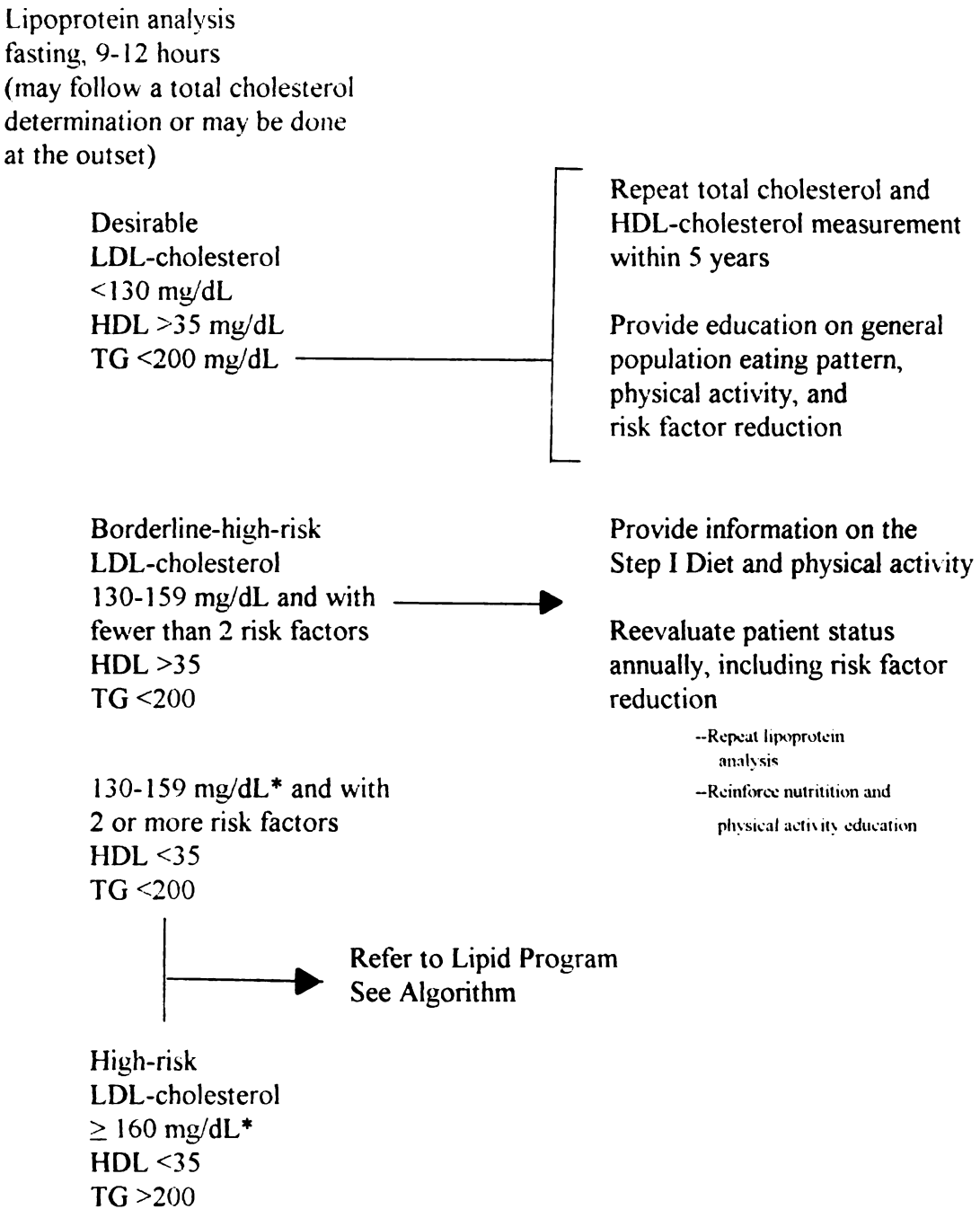
At the end of the initial visit, goal setting will be introduced. Clients will give feedback on what they feel is realistic when beginning the cholesterol reduction process. This may include activity goals e.g.. "I will walk one mile, three times weekly", or dietary goals e.g.. "I will start reading labels and pay attention to fat content." The APN will give feedback on goals and help set priorities. It is important to consider patient goals and direct them to appropriate and reachable endpoints. These goals will be entered into clients' charts and their personal binder. Clients will be instructed to keep a three-day dietary diary for the following visit.

At the dietitian visit, the content of the diet diary will be discussed, and focus will be on needed changes in dietary habits. The "body mass index" method will be utilized to guide weight management (See Appendix A). A diet prescription will be developed based on their diet diary, BMI, and NCEP guidelines. The dietitian will schedule a follow-up visit with those clients who will be making significant dietary changes or those who may need more frequent interventions based on their stage of behavior change.

Phone calls to check progress towards current goals will take place every two weeks during the first 3-6 months of the program. Phone contacts will focus on stage of behavior change, barriers to change and questions regarding the lipid modification process. Interventions appropriate to the stage of change and patient goals will be discussed and encouraged. Clients who are having difficulty with behavior changes may benefit from an office visit with either the APN, physician or dietitian.

Follow-up visits will focus on lipid evaluations and progress towards goals. Because some patients may be attempting several behavior changes simultaneously, some change stages may not be identical. For instance, a patient may be following a Step I diet

closely, but may not be exercising. Interventions may have a different type of focus for each goal. Follow up visits may include meetings with the dietitian if patients need further teaching, new diet prescription, or had weight-loss as one of their goals. If medications have been added, side effects and compliance with medical regimens will also be included. Clients who have started pharmaceutical intervention and those who have heart disease or several risk factors also may need more frequent interventions either in the office or via phone.



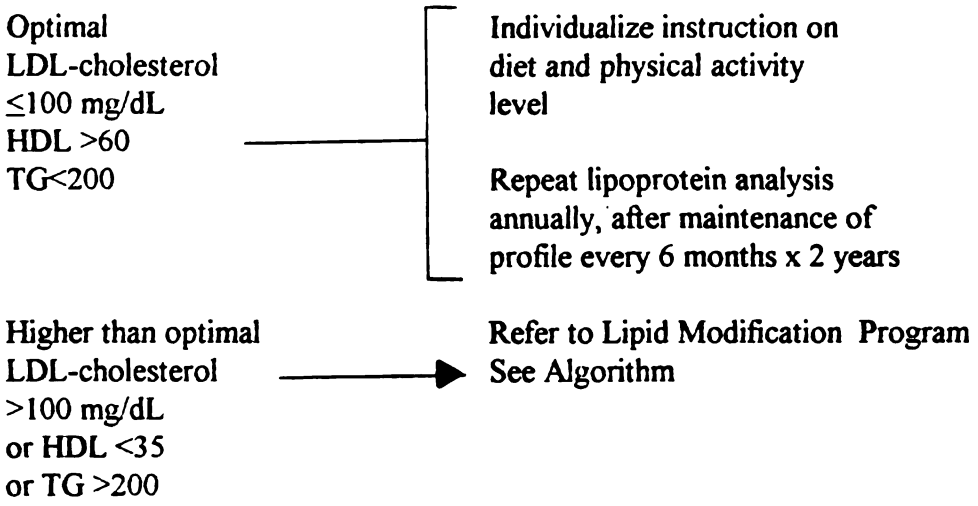
* On the basis of the average of two determinations. If the first two LDL-cholesterol tests differ by more than 30 mg dL, a third test should be obtained within 1-8 weeks and the average value of three tests used.

Figure 5: PRIMARY PREVENTION IN ADULTS WITHOUT EVIDENCE OF CHD: CLASSIFICATION BASED ON LIPID PROFILE

Adapted from: NCEP Guidelines, 1993

Lipoprotein analysis*
fasting, 9-12 hours

Average of 2 measurements
1-8 weeks part**



* Lipoprotein analysis should be performed when the patient is not in the recovery phase from an acute coronary or other medical event that would lower their usual LDL-cholesterol level.

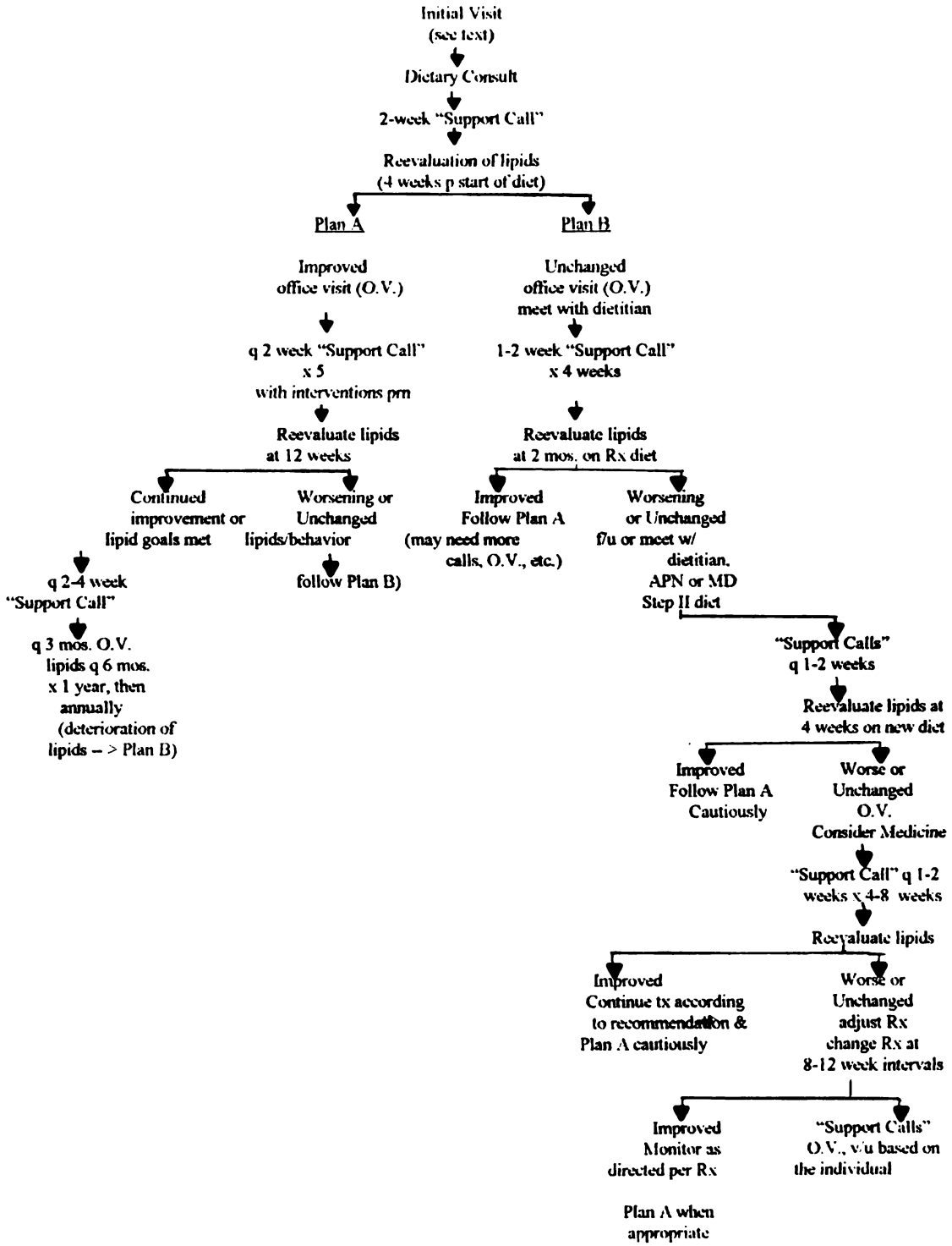
** If the first two LDL-cholesterol tests differ by more than 30 mg/dL, a third test should be obtained within 1-8 weeks and the average value of the three tests used.

Figure 6: SECONDARY PREVENTION IN ADULTS WITH EVIDENCE OF CHD: CLASSIFICATION BASED ON LIPID PROFILE

Adapted from: NCEP Guidelines, 1993

Lipid Goals
LDL < 130
HDL > 35

Protocol I



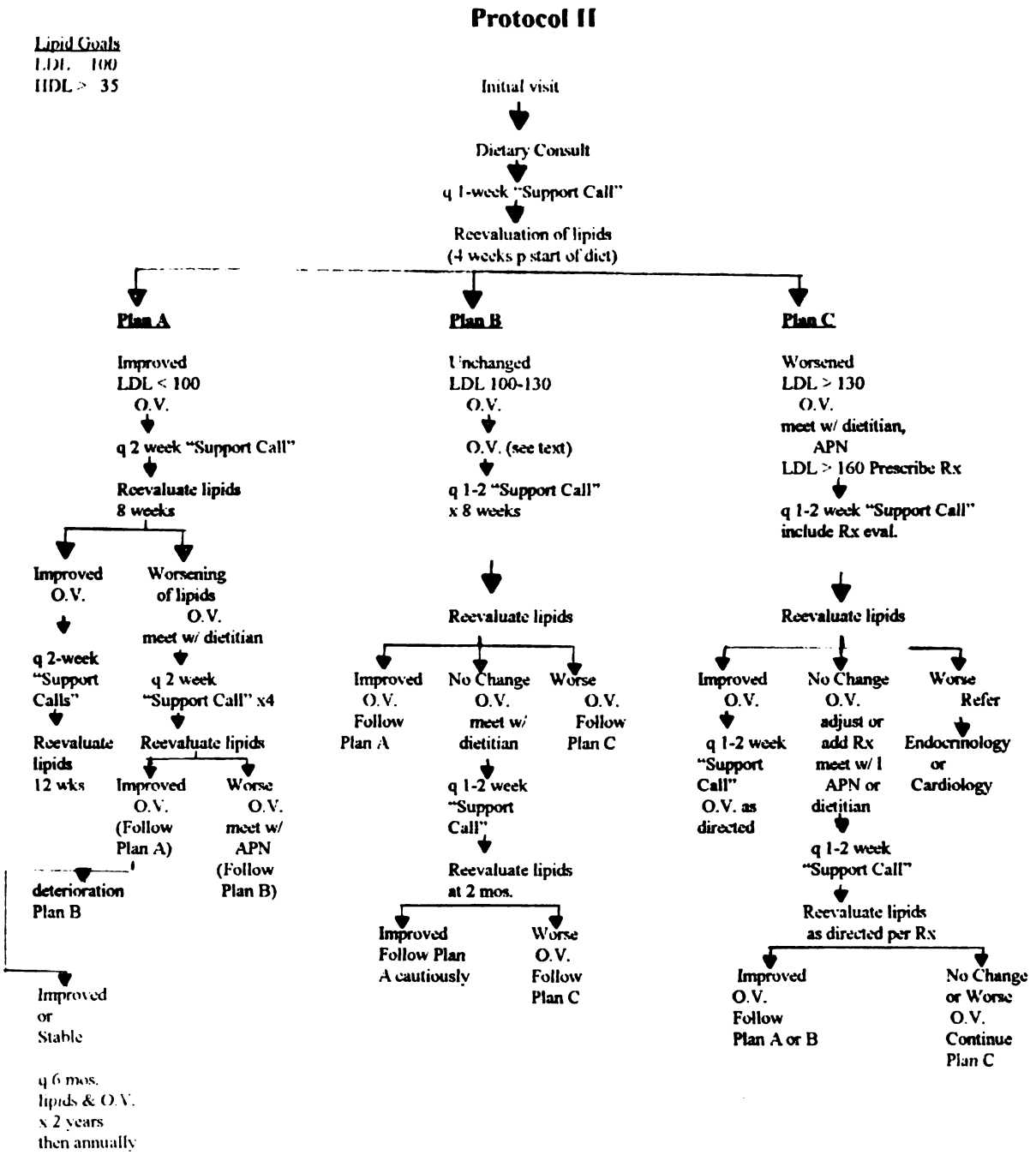


Figure 8: Algorithm for patients with established CHD

PATIENT CRITERIA

The development of a lipid modification program within a primary practice office stems from necessity and prevalence of managed care within the healthcare system. In a large practice, a part-time lipid clinic could easily be supported with their patient population (Brown, 1996; Ziakja, 1995). The client population will be adults over twenty years of age. The NCEP guidelines recommend screening at twenty years old, however, young adults who have had high cholesterol found incidentally on laboratory tests, or those at high risk due to family history may be included at a younger age. Most medication regimens are not utilized in young age groups, however, aggressive dietary and exercise regimens would be indicated to improve already elevated cholesterols. Very young persons (school age) at high risk due to familial dyslipidemias will probably be referred to a university-run lipid clinic due to the high atherogenicity of these dyslipidemias. Clients will have some aspect of dyslipidemia, including an LDL >130, an HDL <35 or triglycerides >200mg. It is of note that elevated triglycerides are poorly understood in relation to the development of CAD. However, they have been found to be correlated with the development of CAD when found in conjunction with low HDL's. Clients already in the lipid modification process will be accepted if referred for treatment, but the primary provider will need to waive further cholesterol interventions to the lipid clinic.

RATIONALE

Multiple studies indicate dyslipidemia is a risk factor for the development of heart disease in adults (NCEP, 1993; Braunwald, 1997). Therefore adults with abnormal lipids were the chosen population. By taking active measures to reduce or improve lipids, the associated risk of athlerosclerosis can be significantly decreased. Patient education regarding dyslipidemia and heart disease is imperative to preventive medicine. Legal ramifications must also be considered as national guidelines exist for the treatment of dyslipidemias. If providers do not follow or ignore dyslipidemia, they may be found neglectful for lack of treatment.

The implementation of a lipid program is not without financial risk. However, health prevention programs are of particular interest to managed care systems that focus on illness prevention and include a considerable percentage of the client base. While this is a wellness-focused program, the clients in the clinic must have some element of dyslipidemia to participate, and "dyslipidemia" is a billable CPT code. Therefore, private insurance participants are likely to have coverage for services. Educational grants from pharmaceutical companies are also anticipated to help defray costs related to patient information, lipid monitoring software, as well as educational opportunities for lipid program staff. Utilization of an APN in the clinic also decreases costs due to the difference in salary compared to the physician providers.

Voluntary enrollment and participation is necessary for the theoretical framework and the program to be successful. Patients will be expected to take an active role in their lipid therapy and decision making. For those patients who refuse enrollment or who are noncompliant, documentation must be in their chart regarding intervention offered.

EVALUATION

Evaluation of the lipid clinic will be performed by an outside firm who has developed an evaluation system based on the NCEP guidelines. This is result of an educational grant by Merke, Sharpe & Dohme. The consulting firm will do a preliminary review based on diagnostic codes that include heart disease, congestive heart failure and dyslipidemia. They will look at lipid profiles, treatment, whether treatment is according to NCEP guidelines, along with appropriate follow up and evaluation of lipid outcomes. They will be looking at providers individually and as a group. Evaluation after the implementation of the lipid program will be based on the same criteria, and will evaluate program versus nonprogram patients.

While improvement in lipid levels and reduction of coronary artery disease is the overall goal of the program, evaluation of outcomes specifically related to APN interventions is also necessary. The demonstration of APN effectiveness and cost efficiency is important, as this information is also essential to the advancement of nursing as a science. Unfortunately, tools that assess APN interventions are limited. They lack a universal language which makes documentation of outcomes difficult. The development of a tool that can measure APN interventions in an outpatient program would be beneficial.

In a lipid program, APN interventions that should be evaluated include: patient satisfaction and cost of care. Patient satisfaction is an important indicator for quality care.in an article by M.D. Naylor et al, they state that "Good communication skills, empathy, and caring are important predictors of patient satisfaction" (Naylor et al, 1991 p. 213). In the same article they refer to a study by Greenfield et al, that concludes "Patients who are involved in their care and are more satisfied with care are more likely to comply with treatment plans" (Naylor et al, 1991, p.213). If these statements are true, and the APN interventions are effective, clients can be expected to be successful in behavior change and thereby meet the overall goals of the clinic. Patient satisfaction indicators

would include those interventions that the APN had carried out, such as education, follow-up phone calls, accessibility to clients, etc

PILOT MATERIALS

Prior to the implementation of the lipid program, patient files, documentation, patient education materials must all be devised for APN interventions. Evaluation of frequent procedures, laboratory tests, paperwork, etc., must be considered prior to the introduction of the program . NCEP guidelines and intervention algorithms are examples of guidelines needed prior to opening the pilot phase. Other pilot materials include the initial history filled out by the patient that is periodically updated throughout their participation in the program (See Appendix B). A flowchart that monitors patient visits, laboratory values, coexisting risk factors, lipid results, exercise and dietary goals, medications, education materials will also be a part of the patient's chart (See Appendix C). Numerous patient education materials will be utilized, they will follow similar formats. Patients will be instructed to keep this information in their lipid binder for reference (See Appendix D). Frequently used letters regarding results, reminders for lab work, will also be utilized (See Appendix E). Memos to facilitate correspondence with primary providers have also been developed (See Appendix F).

Chapter 4

Implications for Practice

The development and implementation of the APN role in a lipid program within a primary care practice is a huge but exciting challenge for advanced practice nursing. The ability to impact favorably on the nation's number one health problem is well within the APN realm. Emphasis on health promotion is inherent in the advanced practice role and a very large element of the lipid program. Multiple APN roles will be encompassed in the planning, development, implementation and evaluation processes.

Marketing the lipid program will be an important aspect of a successful program. Following the implementation of the program, it can be marketed to othe practices within the community, and could be marketed to other advanced practice nurses to help them develop similar programs. The ability to act as a clinical consultant to other providers, practices and APN's will also help promote the lipid program.

Being a positive role model in the practice and the community is important for advanced practice nursing. In this quickly expanding field, it is important for advanced practitioners to undertake endeavors that will set them apart in a positive fashion from other health care providers. Advanced practitioners should also strive to be role models for other nurses and nursing students at any level. Being a role model in the lipid clinic is also very important, as problem solving to achieve dietary and activity goals may arise from the provider's personal experience.

Being a patient advocate is always an important role for any level of nursing (Berger et al, 1996). Cost is often problematic in the treatment of dyslipidemia, and could pose a considerable obstacle for patients without insurance or prescription coverage. While ideally lower cost products could be utilized, strategies to ensure treatment without

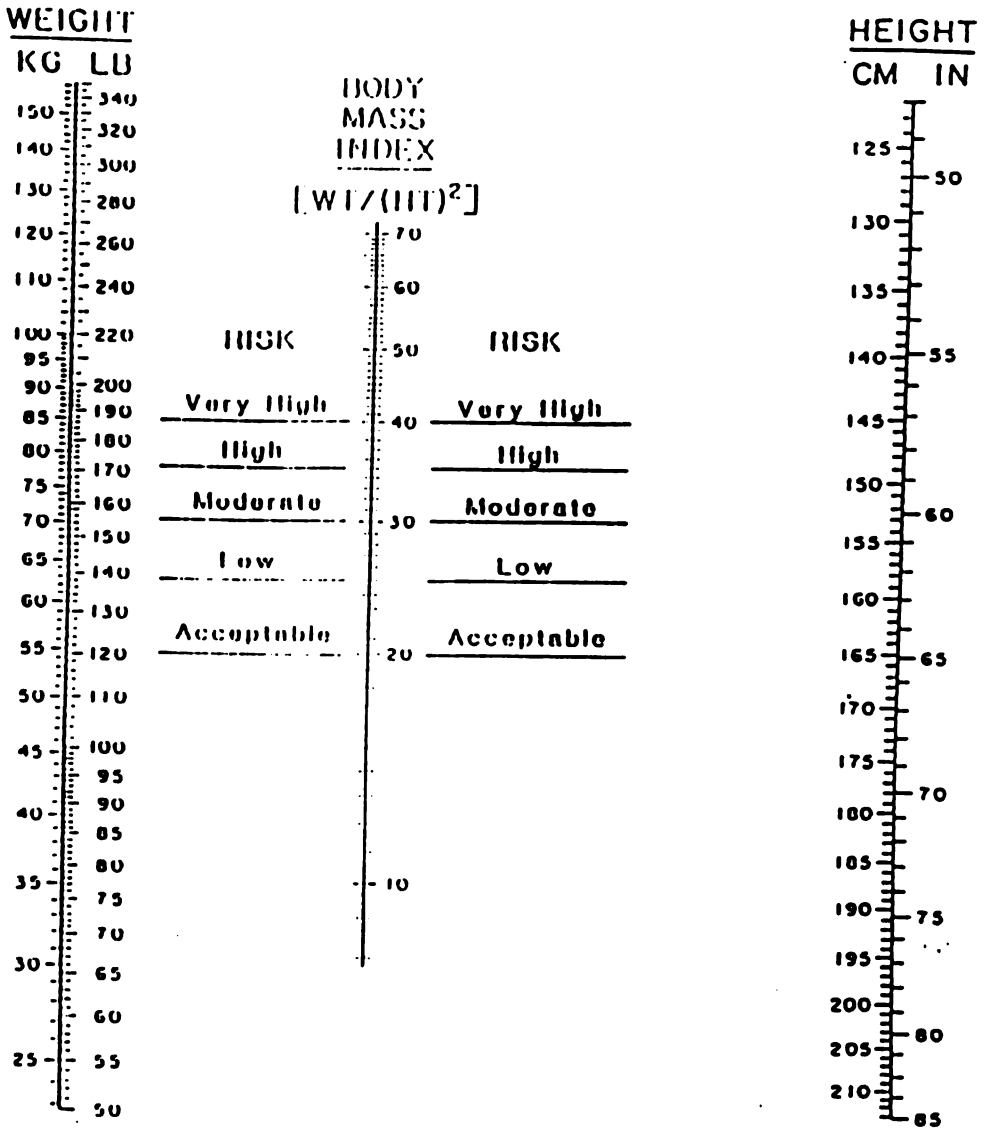
financial hardship must be attempted. Financial burden could adversely affect both compliance and health status. Possibilities that may decrease barriers in regards to cost and compliance include the addition of group classes that will help disperse costs; support groups that help with problem-solving for clients struggling with behavior changes or regularly scheduled special classes that focus on various aspects of desired behaviors such as exercise, cooking, eating out, etc..

The APN role in the delivery of primary care is essential. Concepts identified in primary care include comprehensive, coordinated, accessible care that is focused on early detection, health promotion and prevention of illness (O'Flynn, 1996). Goals of the current healthcare system include the provision of high quality primary care that is also cost effective. Advanced practice nurses have been identified as the ideal healthcare providers to fill many primary care needs (Conn, 1994; Safriet, 1992).

Because the largest expenditures in healthcare are lifestyle induced (e.g. lung disease, heart disease) behavior change is a major focus of APN interventions (O'Flynn, 1996). According to Conn "the healthcare provider who develops excellence in healthcare behavior change will play an important role in healthcare delivery" (Conn, 1994). She also identifies the APN as the "ideal" healthcare provider to deal with health behavior change (Conn, 1994). It is imperative that APN's take this opportunity to promote their uniqueness and strengths among other healthcare providers. For this reason, the concept of outcomes measurement becomes particularly important. Outcome measures can provide concrete evidence that APN interventions are not only effective and cost efficient, but also associated with high degrees of client satisfaction.

APPENDIX A

Appendix A
Nomogram for Determining Body Mass Index (Bray, 1978)



APPENDIX B

Appendix B
Sample Cardiac Focused History

PROMED LIPID MODIFICATION PROGRAM

7901 Angling Road
Portage, MI 49024
(616) 324-8600

Enrollment Questionnaire

NAME:_____ DATE:_____
SS#:_____ DATE OF BIRTH:_____
OCCUPATION:_____

MEDICAL HISTORY:

1. Do you take any medication on a regular basis?
___ YES ___ NO *Please include over the counter supplements*.

	Medication	Dose(mg)	Frequency	Start Date
1.				
2.				
3.				
4.				
5.				
6.				

2. Have you ever taken medication to improve your cholesterol level?
___ YES ___ NO
If yes, which one(s)?_____

3. Do you have any allergies? ___ YES ___ NO
If yes, please list them with type of reaction:
_____
_____

4. Please indicate whether or not you have or have had any of the following conditions:

High Cholesterol	___ YES ___ NO
High Triglycerides	___ YES ___ NO

High Blood Pressure (Hypertension)		___ YES ___ NO
Coronary Artery Disease		___ YES ___ NO
Heart Attack	Date_____	___ YES ___ NO
Bypass Surgery	Date_____	___ YES ___ NO
Angioplasty	Date_____	___ YES ___ NO
Atherectomy	Date_____	___ YES ___ NO
Peripheral Vascular Disease		___ YES ___ NO
Stroke		___ YES ___ NO
Aneurysm (bulging arterial wall)		___ YES ___ NO
Diabetes		___ YES ___ NO
Thyroid disease or problem		___ YES ___ NO
Kidney disease		___ YES ___ NO
Liver disease or jaundice		___ YES ___ NO
Gall Bladder Disease		___ YES ___ NO
Gout		___ YES ___ NO
Peptic Ulcer		___ YES ___ NO
Intestinal problems (colitis, etc.)		___ YES ___ NO
Glaucoma		___ YES ___ NO

5. Women, have you had a hysterectomy? ___ YES ___ NO
   Are you post-menopausal ___ YES ___ NO
   Do you take any hormone supplement? ___ YES ___ NO

RISK FACTOR ASSESSMENT:

6. Are you a smoker? ___ EX ___ YES ___ NO
   If yes or ex: How much do (or did) you smoke per day?

   _____

   How long have (or had) you been smoking? _____
   How long ago did you quit smoking? _____

7. Has your <u>father</u> had any of the following conditions?

Stroke (est. age ___)	___YES ___NO ___Not sure
Heart Attack (est. age ___)	___YES ___NO ___Not sure
Bypass surgery (est. age ___)	___YES ___NO ___Not sure
Angioplasty (est. age ___)	___YES ___NO ___Not sure
Leg pain when walking (Int. Claud.)	___YES ___NO ___Not sure
Coronary Artery Disease	___YES ___NO ___Not sure
High Cholesterol	___YES ___NO ___Not sure
High Triglycerides	___YES ___NO ___Not sure

8. Has your <u>mother</u> had any of the following conditions?
   Stroke (est. age ___) ___YES ___NO ___Not sure

Heart Attack (est. age ___)	___YES ___NO ___Not sure
Bypass surgery (est. age ___)	___YES ___NO ___Not sure
Angioplasty (est. age ___)	___YES ___NO ___Not sure
Leg pain when walking (Int. Claud.)	___YES ___NO ___Not sure
Coronary Artery Disease	___YES ___NO ___Not sure
High Cholesterol	___YES ___NO ___Not sure
High Triglycerides	___YES ___NO ___Not sure

9. Has your brother or sister had any of the following conditions?

Stroke (est. age ___)	___YES ___NO ___Not sure
Heart Attack (est. age ___)	___YES ___NO ___Not sure
Bypass surgery (est. age ___)	___YES ___NO ___Not sure
Angioplasty (est. age ___)	___YES ___NO ___Not sure
Leg pain when walking (Int. Claud.)	___YES ___NO ___Not sure
Coronary Artery Disease	___YES ___NO ___Not sure
High Cholesterol	___YES ___NO ___Not sure
High Triglycerides	___YES ___NO ___Not sure

10. Since problematic cholesterol levels are often inherited, please complete the following:

Name(s) of child(ren)	Age	Cholesterol Test Done
_____	___	___YES ___NO ___Not sure
_____	___	___YES ___NO ___Not sure
_____	___	___YES ___NO ___Not sure
_____	___	___YES ___NO ___Not sure

11. Describe the type and amount of exercise you do regularly:

12. Do you have any pain when walking? ___ Yes ___ No
If yes, please describe:_____

13. Have you had a graded exercise test (stress test)?
___ Yes ___ No If yes, when and where was your most recent stress test done?_____

Has your doctor instructed you to restrict any activities? If yes, please describe:_____
_____

NUTRITION INFORMATION:

14. What do you consider as your ideal weight? _____
What do you consider as realistic short- and long-term weight loss goals? Short-term (2-3 months) _____
Long-term (1 year) _____

15. History of weight problems in your family: Any person over-weight in you immediate family? (mother, father, spouse) Explain:_____

16. Who do you live with?_____
Who usually prepares the food?_____

17. Has your doctor directed you to limit your intake of any foods or additives? ___ YES ___ NO If yes, what?_____

18. List foods you can not tolerate? _____
_____

19. Typical weekly eating pattern - check how often and where meals/snacks are eaten.

	Home (times/wk)	Carry meal from home (times/wk)	Restaurant, Cafeteria (times/wk)	Never eat this meal (times/wk)
Morning	_____	_____	_____	_____
Midday	_____	_____	_____	_____
Evening	_____	_____	_____	_____

20. Do you drink alcoholic beverages? ___ YES ___ NO
If yes, how many ounces do you average per week:
_____ oz. Liquor _____ oz. Wine _____ oz. Beer

21. Are there any things that you do or that you eat that you believe may be contributing to your cholesterol problem? (i.e., overeating at night, never exercising, etc.)

RELEASE OF INFORMATION:

I understand that my lab results will sometimes be discussed with me by telephone. I can be reached best at?

Home # _____ Hours _____

Work # _____ Hours _____

If I am unavailable, I authorize the nurse to discuss these results with

_____, _____
(Name) (Relationship)

I understand that my enrollment in the Promed Lipid Modification Program includes my authorization for the release of information regarding my progress to my primary provider or other medical providers (i.e., cardiologist).

_____
(Signature) (date)

Cardiologist Information:

Name of M.D. _____

Address _____

City _____ State _____ Zip _____

Phone _____ FAX _____

Adapted from and used with permission from L. Cofer, 1996

APPENDIX C

Appendix C

7901 Angling Rd.
Portage, MI 49024
(616) 324-8600

PROMED LIPID
MODIFICATION PROGRAM

P. Provider _____
Other Providers _____
Cardiologist _____

Patient Name _____ Medications 1. _____ 4. _____
Address _____ 2. _____ 5. _____
_____ 3. _____ 6. _____
SS# _____ Phone (H) _____ (W) _____ _____ Cl: N R CoA F _____
Risk Profile: ___known CAD (_____) __HTN __DM __PVD __CVA __Family History GOAL Chol ≤ ____ LDL ≤ ____

Lab Date	CHL	HDL	LDL	CHL/HDL	TRIG	GLUC	SGOT	CPK	Smokes (Amt.)	Wt. (Goal)	Patient Goals	Therapeutic Intervention	Lipid Med Dose
Age							SGPT		Exercise				
Age							SGPT		Exercise				
Age							SGPT		Exercise				
Age							SGPT		Exercise				
Age							SGPT		Exercise				

Adapted and used with permission from L. Cofer, 1996

APPENDIX D

APPENDIX D

SAMPLE: MEDICATION INSTRUCTION

PROMED LIPID MODIFICATION PROGRAM

Medication Information

NAME: Colestid Tablets (Colestipol)

PURPOSE: To lower total cholesterol and the "bad" or "lousy" LDL.

WORKS BY: Binding bile acids made up largely of cholesterol) in the intestine which are then excreted in the stool. As the liver makes more bile acid to replace what is lost, it utilizes cholesterol from the blood (Bile acids aid in digestion).

DOSE: 2 to 16 tablets per day once or in divided doses.

YOU SHOULD NOT TAKE COLESTID IF: You have severe constipation, triglycerides greater than 250 or complete biliary obstruction.

POSSIBLE SIDE EFFECTS: CALL YOUR DOCTOR OR THE CHOLESTEROL CLINIC IF YOU HAVE: Constipation, stomach pain, gas, nausea, vomiting, heartburn, diarrhea, bleeding tendencies, black-tarry stools, irritation of the skin, tongue and perianal area, backache, headache, and weight loss or gain.

FOLLOW-UP LAB TESTS: Your cholesterol and triglycerides will be checked frequently during the first months of therapy and periodically thereafter. A CBC (complete blood count) and PT (clotting time) will be done annually.

DRUG INTERACTIONS: Colestid may bind with other medications, decreasing effectiveness. Take other drugs at least 1 hour before or 4-6 hours after Colestid.

SPECIAL INSTRUCTIONS: Colestid tablets should be taken whole. Do not chew or crush tablets.

Adapted and used with permission L. Cofer, 1996; Ziajka, 1995

APPENDIX E

APPENDIX E

SAMPLE: PATIENT LETTER

PROMED LIPID MODIFICATION PROGRAM

7901 Angling Road
Portage, MI 49024
(616) 324-8600

Edward Millermaier, MD
Medical Director - Lipid Program

Mary Ellen Yealin, MSN, FNP
Clinical Director - Lipid Program

Joyce Ross
Registered Dietitian

Date: _____

Dear: _____

We have been unable to reach you by telephone regarding your cholesterol situation. Please call one of the Lipid Clinic nurses to discuss your results, progress and recommendation at this time.

Thank you for your cooperation!

Sincerely,

Edward Millermaier, MD
Medical Director

Mary Ellen Yealin, MSN, FNP
Clinical Director

Adapted and used with permission L. Cofer, 1996

APPENDIX F

APPENDIX F

SAMPLE: MEMO

Memo From:

PROMED LIPID MODIFICATION PROGRAM

Date: _____

To: _____

Your patient, _____, is enrolled in the Promed Lipid Modification Program . We have added _____ to the medical regime in order to improve lipid levels and decrease cardiovascular risks. We will monitor the response to this therapy and keep you informed of your patient's progress. We will contact you immediately should any problems develop.

Sincerely,

Mary Ellen Yealin, MSN, FNP

Edward Millermaier, MD

LIST OF REFERENCES

LIST OF REFERENCES

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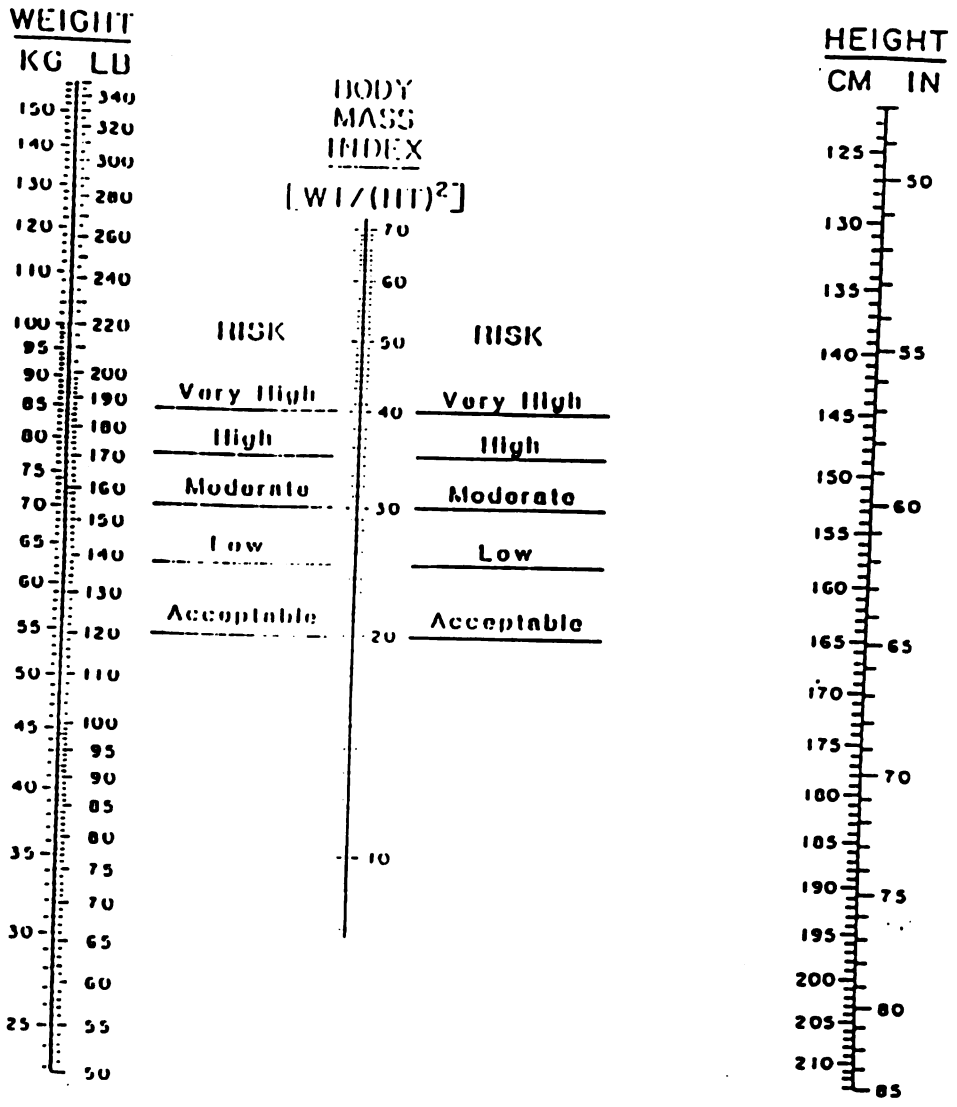
APPENDIX A

Appendix A
Nomogram for Determining Body Mass Index (Bray, 1978)



APPENDIX B

Appendix B
Sample Cardiac Focused History

PROMED LIPID MODIFICATION PROGRAM

7901 Angling Road
Portage, MI 49024
(616) 324-8600

Enrollment Questionnaire

NAME:_____ DATE:_____
SS#:_____ DATE OF BIRTH:_____
OCCUPATION:_____

MEDICAL HISTORY:

1. Do you take any medication on a regular basis?
___ YES ___ NO *Please include over the counter supplements*.

	Medication	Dose(mg)	Frequency	Start Date
1.				
2.				
3.				
4.				
5.				
6.				

2. Have you ever taken medication to improve your cholesterol level?
___ YES ___ NO
If yes, which one(s)?_____

3. Do you have any allergies? ___ YES ___ NO
If yes, please list them with type of reaction:
_____
_____

4. Please indicate whether or not you have or have had any of the following conditions:

High Cholesterol	___ YES ___ NO
High Triglycerides	___ YES ___ NO

High Blood Pressure (Hypertension)		___ YES ___ NO
Coronary Artery Disease		___ YES ___ NO
Heart Attack	Date_____	___ YES ___ NO
Bypass Surgery	Date_____	___ YES ___ NO
Angioplasty	Date_____	___ YES ___ NO
Atherectomy	Date_____	___ YES ___ NO
Peripheral Vascular Disease		___ YES ___ NO
Stroke		___ YES ___ NO
Aneurysm (bulging arterial wall)		___ YES ___ NO
Diabetes		___ YES ___ NO
Thyroid disease or problem		___ YES ___ NO
Kidney disease		___ YES ___ NO
Liver disease or jaundice		___ YES ___ NO
Gall Bladder Disease		___ YES ___ NO
Gout		___ YES ___ NO
Peptic Ulcer		___ YES ___ NO
Intestinal problems (colitis, etc.)		___ YES ___ NO
Glaucoma		___ YES ___ NO

5. Women, have you had a hysterectomy? ___ YES ___ NO
Are you post-menopausal ___ YES ___ NO
Do you take any hormone supplement? ___ YES ___ NO

RISK FACTOR ASSESSMENT:

6. Are you a smoker? ___ EX ___ YES ___ NO
If yes or ex: How much do (or did) you smoke per day?

_____

How long have (or had) you been smoking? _____
How long ago did you quit smoking? _____

7. Has your <u>father</u> had any of the following conditions?

Stroke (est. age ___)	___YES ___NO ___Not sure
Heart Attack (est. age ___)	___YES ___NO ___Not sure
Bypass surgery (est. age ___)	___YES ___NO ___Not sure
Angioplasty (est. age ___)	___YES ___NO ___Not sure
Leg pain when walking (Int. Claud.)	___YES ___NO ___Not sure
Coronary Artery Disease	___YES ___NO ___Not sure
High Cholesterol	___YES ___NO ___Not sure
High Triglycerides	___YES ___NO ___Not sure

8. Has your <u>mother</u> had any of the following conditions?
Stroke (est. age ___) ___YES ___NO ___Not sure

Heart Attack (est. age ___)	___YES ___NO ___Not sure
Bypass surgery (est. age ___)	___YES ___NO ___Not sure
Angioplasty (est. age ___)	___YES ___NO ___Not sure
Leg pain when walking (Int. Claud.)	___YES ___NO ___Not sure
Coronary Artery Disease	___YES ___NO ___Not sure
High Cholesterol	___YES ___NO ___Not sure
High Triglycerides	___YES ___NO ___Not sure

9. Has your brother or sister had any of the following conditions?

Stroke (est. age ___)	___YES ___NO ___Not sure
Heart Attack (est. age ___)	___YES ___NO ___Not sure
Bypass surgery (est. age ___)	___YES ___NO ___Not sure
Angioplasty (est. age ___)	___YES ___NO ___Not sure
Leg pain when walking (Int. Claud.)	___YES ___NO ___Not sure
Coronary Artery Disease	___YES ___NO ___Not sure
High Cholesterol	___YES ___NO ___Not sure
High Triglycerides	___YES ___NO ___Not sure

10. Since problematic cholesterol levels are often inherited, please complete the following:

Name(s) of child(ren)	Age	Cholesterol Test Done
_____	___	___YES ___NO ___Not sure
_____	___	___YES ___NO ___Not sure
_____	___	___YES ___NO ___Not sure
_____	___	___YES ___NO ___Not sure

11. Describe the type and amount of exercise you do regularly:

12. Do you have any pain when walking? ___ Yes ___ No
If yes, please describe:_____

13. Have you had a graded exercise test (stress test)?
___ Yes ___ No If yes, when and where was your most recent stress test done?_____

Has your doctor instructed you to restrict any activities? If yes, please describe:_____
_____

NUTRITION INFORMATION:

14. What do you consider as your ideal weight? _____
What do you consider as realistic short- and long-term weight loss goals? Short-term (2-3 months) _____
Long-term (1 year) _____

15. History of weight problems in your family: Any person over-weight in you immediate family? (mother, father, spouse) Explain:_____

16. Who do you live with?_____
Who usually prepares the food?_____

17. Has your doctor directed you to limit your intake of any foods or additives? ___ YES ___ NO If yes, what?_____

18. List foods you can not tolerate? _____
_____

19. Typical weekly eating pattern - check how often and where meals/snacks are eaten.

	Home (times/wk)	Carry meal from home (times/wk)	Restaurant, Cafeteria (times/wk)	Never eat this meal (times/wk)
Morning	_____	_____	_____	_____
Midday	_____	_____	_____	_____
Evening	_____	_____	_____	_____

20. Do you drink alcoholic beverages? ___ YES ___ NO
If yes, how many ounces do you average per week:
_____ oz. Liquor _____ oz. Wine _____ oz. Beer

21. Are there any things that you do or that you eat that you believe may be contributing to your cholesterol problem? (i.e., overeating at night, never exercising, etc.)

RELEASE OF INFORMATION:

I understand that my lab results will sometimes be discussed with me by telephone. I can be reached best at?

Home # _____ Hours _____

Work # _____ Hours _____

If I am unavailable, I authorize the nurse to discuss these results with

_____, _____
(Name) (Relationship)

I understand that my enrollment in the Promed Lipid Modification Program includes my authorization for the release of information regarding my progress to my primary provider or other medical providers (i.e., cardiologist).

_____
(Signature) (date)

Cardiologist Information:

Name of M.D. _____

Address _____

City _____ State _____ Zip _____

Phone _____ FAX _____

Adapted from and used with permission from L. Cofer, 1996

APPENDIX C

Appendix C

7901 Angling Rd.
Portage, MI 49024
(616) 324-8600

PROMED LIPID
MODIFICATION PROGRAM

P. Provider _____
Other Providers _____
Cardiologist _____

Patient Name _____ Medications 1. _____ 4. _____
Address _____ 2. _____ 5. _____
_____ 3. _____ 6. _____
SS# _____ Phone (H) _____ (W) _____ _____ Cl: N R CoA F _____
Risk Profile: ___known CAD (_____) __HTN __DM __PVD __CVA __Family History GOAL Chol ≤ ____ LDL ≤ _____

Lab Date	CHL	HDL	LDL	CHL/HDL	TRIG	GLUC	SGOT	CPK	Smokes (Amt.)	Wt. (Goal)	Patient Goals	Therapeutic Intervention	Lipid Med Dose
Age							SGPT		Exercise				
Age							SGPT		Exercise				
Age							SGPT		Exercise				
Age							SGPT		Exercise				
Age							SGPT		Exercise				

Adapted and used with permission from L. Cofer, 1996

APPENDIX D

APPENDIX D

SAMPLE: MEDICATION INSTRUCTION

PROMED LIPID MODIFICATION PROGRAM

Medication Information

NAME: Colestid Tablets (Colestipol)

PURPOSE: To lower total cholesterol and the "bad" or "lousy" LDL.

WORKS BY: Binding bile acids made up largely of cholesterol) in the intestine which are then excreted in the stool. As the liver makes more bile acid to replace what is lost, it utilizes cholesterol from the blood (Bile acids aid in digestion).

DOSE: 2 to 16 tablets per day once or in divided doses.

YOU SHOULD NOT TAKE COLESTID IF: You have severe constipation, triglycerides greater than 250 or complete biliary obstruction.

POSSIBLE SIDE EFFECTS: CALL YOUR DOCTOR OR THE CHOLESTEROL CLINIC IF YOU HAVE: Constipation, stomach pain, gas, nausea, vomiting, heartburn, diarrhea, bleeding tendencies, black-tarry stools, irritation of the skin, tongue and perianal area, backache, headache, and weight loss or gain.

FOLLOW-UP LAB TESTS: Your cholesterol and triglycerides will be checked frequently during the first months of therapy and periodically thereafter. A CBC (complete blood count) and PT (clotting time) will be done annually.

DRUG INTERACTIONS: Colestid may bind with other medications, decreasing effectiveness. Take other drugs at least 1 hour before or 4-6 hours after Colestid.

SPECIAL INSTRUCTIONS: Colestid tablets should be taken whole. Do not chew or crush tablets.

Adapted and used with permission L. Cofer, 1996; Ziajka, 1995

APPENDIX E

APPENDIX E

SAMPLE: PATIENT LETTER

PROMED LIPID MODIFICATION PROGRAM

7901 Angling Road
Portage, MI 49024
(616) 324-8600

Edward Millermaier, MD
Medical Director - Lipid Program

Mary Ellen Yealin, MSN, FNP
Clinical Director - Lipid Program

Joyce Ross
Registered Dietitian

Date: _____

Dear: _____

We have been unable to reach you by telephone regarding your cholesterol situation. Please call one of the Lipid Clinic nurses to discuss your results, progress and recommendation at this time.

Thank you for your cooperation!

Sincerely,

Edward Millermaier, MD
Medical Director

Mary Ellen Yealin, MSN, FNP
Clinical Director

Adapted and used with permission L. Cofer, 1996

APPENDIX F

APPENDIX F

SAMPLE: MEMO

Memo From:

PROMED LIPID MODIFICATION PROGRAM

Date: _____

To: _____

Your patient, _____, is enrolled in the Promed Lipid Modification Program . We have added _____ to the medical regime in order to improve lipid levels and decrease cardiovascular risks. We will monitor the response to this therapy and keep you informed of your patient's progress. We will contact you immediately should any problems develop.

Sincerely,

Mary Ellen Yealin, MSN, FNP

Edward Millermaier, MD

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