

## **Current Research**

The following is a list of research that has been or is currently being conducted at the NewYork-Presbyterian Hospital Preventive Cardiology Program/Columbia University.

### **Effectiveness of a Family Heart Health Intervention Trial**

The Efficacy of a Family Heart Health Intervention Program is a current R01 grant funded by the NIH (1 RO1 HL 75101) that studies family members of individuals with coronary heart disease (CHD) who are at increased risk of vascular events due to shared genes and lifestyle. The Family Heart Health Intervention Trial is a 1-year randomized controlled clinical trial among family members or cohabitants visiting patients at NewYork-Presbyterian Hospital with a diagnosis of an acute coronary syndrome or coronary revascularization procedure. Participants without CVD will be randomly assigned to a control group that receives general health messages about lifestyle and CHD prevention (N=250) or a special intervention (SI) group (N=250) that receives personalized CHD risk factor assessment, lifestyle counseling and education with regular follow-up by a prevention counselor and progress reports to primary physician(s). The research will test the hypothesis that specific information about personal CHD risk and individualized instruction to lower risk delivered at a "teachable moment" will result in greater adherence to national CHD prevention goals and is cost-effective relative to a brief non-personalized intervention. The primary outcome is the mean % reduction in LDL cholesterol in the SI group versus the control group at 1 year. Secondary outcomes include mean % change in the Framingham global risk score, systolic and diastolic blood pressure, total cholesterol, high density lipoprotein (HDL) cholesterol, triglycerides, BMI, waist circumference, glucose, HbA1C, hsCRP, and the proportion of subjects adhering to the TLC diet or heart healthy diet, not smoking, and attaining regular exercise in the two groups at 1 year. The impact of the SI versus control intervention on quality of life will also be assessed. The cost-effectiveness of the SI relative to the control intervention will also be determined.

The **specific aims** of the study are:

- a. To compare the mean % reduction in low-density lipoprotein (LDL) cholesterol in the SI vs. control groups at 1 year.
- b. To determine the efficacy of a SI to increase adherence to the NCEP ATP III TLC Diet at 1 year compared to a control group and determine the relation between adherence to TLC diet and LDL levels. In addition, a brief food frequency dietary assessment tool recommended by NCEP ATP III (MEDFICTS: meat, eggs, dairy, fried foods, fat in baked goods, convenience foods, fats added at the table, and snacks), will be validated against 3-day food records analyzed using the Minnesota Nutrition Data System (NDS) and the Gladys Block Questionnaire.
- c. To evaluate the impact of a SI vs. control intervention on Framingham risk score and individual CHD risk factors including blood pressure, lipids and lipoproteins, body mass index (BMI), waist circumference, HbA1C, and high sensitivity C-reactive protein (hsCRP) at 1 year.

- d. To determine the relation between baseline level of hsCRP and % reduction in LDL cholesterol in the SI group compared to the control group.
- e. To evaluate the cost-effectiveness of a SI vs. a control intervention to reduce LDL levels at 1 year and the cost per life year saved projected from clinical outcome trials of lipid lowering therapy.

The study will evaluate a novel “systems approach” to prevention in a real world setting among a population at potentially increased risk of CHD owing to family history and/or lifestyle. The intervention is designed to be of sufficient intensity that it will lead to significant improvements in CHD risk factors and lifestyle and feasible enough to be exported to diverse settings.

### **Applied Research in Preventive Cardiology**

The Applied Research in Preventive Cardiology grant is a current K24 grant funded by the National Institutes of Health (K24 HL76346 ). The proposed research will test the impact of an intervention targeted to individuals participating in the Family Passport to Heart Health Program, a hospital-based standardized screening and educational intervention study, that are classified as high risk due to established CVD or diabetes based on the National Cholesterol Education Program Adult Treatment Panel III Guidelines. The proposed study is a randomized clinical trial to compare the adherence of subjects assigned to a physician intervention to national prevention goals compared to those provided with a standard educational sheet for secondary prevention goals. The design is a 1-year clinical trial among 370 family members or visitors of patients admitted to New York Presbyterian Hospital with a diagnosis of an acute coronary syndrome, CABG, catheter-based revascularization, or other diagnosis of ischemic CVD. Participants will be randomly assigned to one of 2 interventions: 1) control group that receives a standard educational sheet on secondary prevention goals and usual care or 2) physician-based intervention plus progress report of prevention goal status to primary care physician. The rationale for this sub-study is that the intensity of preventive intervention should be matched to the level of CVD risk of the patient. The control intervention is a standard educational checklist in addition to usual care and the physician-based intervention will provide incremental intervention to facilitate appropriate follow-up and medical management among the high-risk subpopulation.

#### **A. Specific Aims**

1. To determine the effectiveness of a physician-based intervention among high-risk patients compared to usual care and a standard educational secondary prevention guideline sheet at the time a family member is hospitalized with CVD. The primary outcome is the difference in the proportions of patients on statin therapy and/or at LDL target of <100mg/dL at 1 year in the intervention vs. control groups.
2. To evaluate the impact of a physician based intervention vs. usual care and education sheet on a composite of AHA prevention goals stratified by sex and ethnicity.

3. To evaluate the resource utilization and cost-effectiveness of a physician intervention vs. control intervention on attainment of prevention goals.

### **Passport To Heart Health Study**

The Family Passport To Heart Health Program is an ongoing patient service and clinical research study targeted to family members and visitors of patients admitted to our hospital with CVD. Clinical and research program staff provide a traditional risk factor screening and educational intervention with the goal of improving awareness of CVD risk and adherence to national prevention guidelines including heart healthy lifestyle behaviors. The program was established to provide comprehensive quality preventive care for patients by extending care to family members at risk of CVD events due to shared genetic risk and lifestyle during a “motivational moment”. Educational materials were created in English and Spanish, pilot tested, and revised. Program staff recruits family members in the waiting rooms located adjacent to the coronary care unit and cardiothoracic intensive care unit. They also distribute pamphlets to hospitalized patients to invite family members to be screened and educated at no charge. Physicians and nurses in the hospital have received in-services about the program and assist with recruitment. Participants complete a baseline questionnaire and are told that they will be re-contacted at regular intervals to determine clinical status and change in lifestyle behaviors.

Passport offices are located near the family waiting rooms making it convenient for family members to be screened while they are waiting during visiting hours. The screening and educational visit takes approximately 30 minutes to conduct. The screening includes standard measurement of total and high-density lipoprotein (HDL) cholesterol using a 5 minute fingerstick technique, blood pressure measurement, body mass index (BMI), waist circumference, lifestyle habits, glucose (if fasting) and calculation of Framingham risk score. The Passport to Heart Health Program has been extended to other settings as well. For example, in the wake of the World Trade Center Disaster, our program staff set up a mobile screening unit for victims and families of the tragedy to identify those who might be at increased risk of a CVD event.

The **Specific Aims** of the Passport To Heart Health Study are:

- a. To determine the prevalence and clustering of traditional risk factors among family members and visitors of patients hospitalized with CVD.
- b. To assess perceived risk and knowledge about CVD risk factors overall and stratified by sex and ethnicity at baseline, immediately following the intervention and 1 year later.
- c. To determine the efficacy of the screening and educational intervention on altered lifestyle habits at 1 year.
- d. To determine the cost-effectiveness of identifying new cases of patients with high risk (>20% Framingham risk or CVD) that can be attributed to the program.

- e. To describe the follow-up medical management (initiation of new CVD prevention medications) 1 year after the intervention.

### **RUTH Trial**

The Raloxifene Use for The Heart (RUTH) trial is a double blind, placebo-controlled, randomized, clinical trial of 10,101 postmenopausal women aged 55 years or older from 26 countries funded by Eli Lilly. The **primary objective** of RUTH is to determine whether raloxifene 60 mg/d, a SERM with beneficial effects on intermediate CVD endpoints and clinical bone benefits, lowers the risk of the coronary events [coronary death, non-fatal MI, or hospitalized acute coronary syndromes other than MI] and reduces the risk of invasive breast cancer in postmenopausal women at risk for a major coronary event compared to placebo (23). **Secondary objectives** are to evaluate the effect of raloxifene compared with placebo on the following cardiovascular events individually and combined: cardiovascular death (including death from coronary disease, atherosclerotic non-coronary vascular disease and other deaths related to cardiovascular disease such as stroke or pulmonary embolism), nonfatal MI, hospitalized acute coronary syndrome other than MI, myocardial revascularization (including catheter-based coronary revascularization or coronary bypass surgery), and stroke. Other secondary endpoints include: all-cause hospitalization and mortality, biochemical markers of cardiovascular risk, non-coronary arterial revascularization or non-traumatic lower extremity amputation, all breast cancers, fractures, and venous thromboembolic events.

Access to data from the RUTH trial presents an unparalleled **scientific opportunity** for trainees to gain experience in a major landmark international clinical trial. Although Columbia is not a clinical site for the RUTH trial, any of our trainees are eligible to submit sub-study or publication proposals under Dr. Mosca's guidance. This experience will be particularly useful for trainees that have limited time to spend collecting data de novo but would like to gain exposure to the hypothesis formulation, analysis, and writing phases of clinical trials or to complement their experience with other aspects of patient-oriented research. Because of the major impact the results of this trial will have on women's health, it represents a unique opportunity for trainees interested in alternatives to hormone therapy and chronic disease prevention among postmenopausal women. Research in this diverse population of patients will provide insight into the complexity of evaluating data combined from more than 150 centers with significantly different cultures and rates of background CVD prevention.

### **US Cohorts Pooling Project**

The US Cohorts Pooling Project is an ongoing secondary analysis project that has been supported by the NHLBI through a Mentored Clinical Scientist Development Grant (K08 03681) and through a Grant-In-Aid from the AHA (#97500703N). The purpose is to evaluate ethnic and gender differences in CVD risk among participants of long-term epidemiological studies with at least 1000 women and 8 years of follow-up data.

Cohorts that contributed data to the study are the Atherosclerosis Risk in Communities (ARIC) Study, the Charleston Heart Study, the Evan's County Study, the Framingham Heart Study and the Offspring study, the NHANES Follow-up Study, the Rancho Bernardo Study, the San Antonio Heart Study, and the Tecumseh Study. The advantages of the pooling project are the long-term follow-up, ethnic diversity, and ability to examine rare events (e.g. stroke mortality) that have limited power in individual cohort studies. For example, data was generated from the pooling project to test the validity of Framingham risk functions in diverse populations.

The **specific aims** of the US Cohorts Pooling Project are:

- a. To examine the distribution and prevalence of major CVD risk factors among white, black and Hispanic women both within and between populations.
- b. To define the association of traditional CVD risk factors to mortality due to all causes, CVD, and coronary heart disease overall and by ethnic group.
- c. To evaluate the distribution and prevalence of major CVD risk factors and mortality due to all causes, CVD and coronary heart disease in men overall and by ethnic group.
- d. To determine the risk of death due to CVD and the CVD case-fatality rate for prevalent CVD in women compared to men overall and by ethnic group.
- e. To examine gender differences in the burden of CVD risk factors on mortality due to all causes, CVD and coronary heart disease.