

# POSTER SESSIONS

## POSTER SESSIONS THURSDAY, APRIL 11

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**POSTER SESSIONS**

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## Health Smart Church Program: A Successful Cardiovascular Health Intervention

*Cheryl Anne Martin, Ph.D., Anne Arundel County Department of Health, Maryland*

The Health Smart Church Program is a partnership of the Anne Arundel County Department of Health, 3 medical partners, and 39 local minority churches. The program provides free blood pressure screenings and health information on blood pressure, nutrition, and physical fitness to participants. Church members are trained and certified in blood pressure measurement by staff from the health department. Blood pressure measurement equipment, health information, and other supplies are provided to each church. Churches agree to conduct one blood pressure screening event per month from October through June each year. In 2001, 139 blood pressure screening events were conducted. A total of 2,230 persons participated in these events, and a total of 4,969 blood pressure measurements were taken. Thirty-six percent of the blood pressures taken were elevated ( $\geq 140/90$  mmHg), and 10 percent were significantly elevated ( $\geq 160/100$  mmHg). Those with high blood pressure are contacted by the medical partner and are rescreened free of charge. They are referred to care if it is needed. At the screening events, 317 participants found out for the first time that their blood pressure was elevated. Overall, the Health Smart Church Program enables people to become aware of their blood pressure and ways to help keep it under control.

## Faith-Based Cardiovascular Model

*Gregory J. Harris, M.A.S.S., Health Promotion Program Initiatives, Inc.*

This 19-month African American cardiovascular project is designed to decrease ethnic disparities. The community was mobilized, and resources were coordinated to support effective/sustainable African American programs addressing illness (strokes, cigarette smoking, physical inactivity, weight monitoring, and high blood pressure); learn of unhealthy lifestyles (coordinated public relations campaigns); educate/participate in screening (blood pressure, weight); community activities (awareness; alternatives; informational; educational; individual, family, and intergenerational; environmental); increase culturally sensitive activities (community, church-based, or beauty shop); and examine data/make appropriate adjustments. Strategies included church committee implemented/evaluated church-community programs, beauty shop activities, or activities at places people gather.

The presentation shares successful church committee processes and data: exercise (exercise to church music), nutritional practices (cooking classes), tobacco prevention activities, stress management groups, blood pressure and weight screening/referral/followup, special church holidays related to cardiovascular health, achievement recognition, intergenerational, community awareness, data collection, presurveys, postsurveys, monthly activity reports,

vital statistics, and more. The faith-based prevention model, a CSAP promising program, was modified. Each church (N = 10) implemented separate youth and adults programs based on needs, assets, and outcome data. Project baseline percent data (postdata will be available in September) as compared to Healthy People 2010 (African American) data:

Concept	Youth N = 115	Adult N = 220	HP Youth	HP Adults
Leisure time activities	57.4	33.2		80
30 minutes exercise	64.3	43.7	30	30
Avoid cigarette smoking	77.4	77.4	84	82
Tried to quit smoking	25.2	13.6		75
High blood pressure	69.6	75		84
Healthy weight	73	53.2		60
Two servings of fruit	53.9	38.6	24	24

## Phase One of a Comprehensive Community-Based Approach to Cardiovascular Disease Prevention

*Liana S. Lianov, California Heart Disease and Stroke Program, California Department of Health Services, Nan Pheatt, M.P.H.*

**Purpose:** The aim was to identify and develop a plan for overcoming barriers at the local level that prevented California's San Bernardino County communities from working collaboratively to reduce their county's heart disease death rate. Because San Bernardino County has the highest heart disease death rate in the State, community-based organizations (CBOs) and the county health department had accepted the challenge of reducing the heart disease burden by implementing a hypertension prevention and control project. However, they were unable to develop a collaborative having leadership with enough capacity or community representation to satisfy potential funders.

**Methods:** The California Heart Disease and Stroke Prevention (CHDSP) Program assisted the community in developing a planning grant proposal that would enable (1) GIS mapping of relevant health resources in the county, (2) research and identification of the most effective health promotion interventions for the target populations, (3) identification of novel interventions that had been used for other diseases and might have a role in hypertension and other risk factors, (4) identification of all constituencies in the community, and (5) selection of the most appropriate organization to take the lead in the hypertension and other cardiovascular disease (CVD) prevention projects.

**Results/Conclusions:** Through this research and self-examination process, the community-based organizations were able to develop new linkages with each other, develop capacity, and implement CVD prevention projects with a greater likelihood of success. Phase 2 of the project will implement and evaluate a comprehensive tool for public health workers, which will include this intervention.

#### **P-4 The Role of Food Phenolics in Reducing Cardiovascular Disease Risks**

*Joe S. Hughes, Ph.D., California State University, San Bernardino*

Considerable research interest is currently focused on food phenolics because of their antioxidant and free radical scavenging abilities and their potential for reducing cardiovascular disease risk and improving human health. Food phenolics (commonly called polyphenolics) come in many forms and are widely distributed in a broad range of foods. Most research interest has been focused on one class of phenolic compounds—the flavonoids. Flavonoids in wine and tea have been most extensively studied for their heart-healthy benefits and are believed to be primarily responsible for the low incidence of heart disease in France, commonly referred to as the “French Paradox.” However, the antioxidant capacity of flavonoids in a variety of other foods has also been reported, including flavonoids in green tea, grape juice, beer, dry beans, and chocolate and in a wide range of fruits and vegetables.

Though the antioxidant capacity of flavonoids varies, several researchers have reported finding flavonoids that are more potent as antioxidants than are vitamin E and vitamin C. A better understanding of flavonoids, their distribution in foods, their antioxidant abilities, and their potential benefits in protecting against cardiovascular disease is needed.

#### **P-5 Congestive Heart Failure and Cardiac Rehab . . . Do They Mix?**

*Jeannie Garber, Carilion Medical Center, Karen Warsaw*

Carilion Roanoke Memorial Hospital implemented a congestive heart failure (CHF) outpatient education/activity program in 1996. The main objectives of the CHF Center are (1) to address CHF readmission rates, (2) to facilitate the educational needs and treatment compliance, and (3) to develop a CHF Center model that could be duplicated. Because of similar patient population, staff expertise, utilization of space, and equipment, the center is based in the Cardiac Rehab. The center is staffed by registered nurses, an exercise physiologist, a C.N.S., a R.D.E., and a psychologist. Individual assessments, activity progression, counseling, and group education are components of each visit. To date, 246 patients have enrolled in the CHF Center. During fiscal year 2000, 54 patients were followed. During the first, second, and fourth quarters, there were no readmissions; in the third quarter, one out of five patients were readmitted at a rate of 20 percent. The inpatient readmission rate of noncenter patients was at 15.16 percent; potential prevented readmissions could save \$81,761. This CHF Center model has been implemented across the Carilion Health System with varying degrees of success. Barriers identified include a lack of patient transportation, poor physician support, and the absence of reimbursement. Further plans to develop the program include the use of telephone followup, computerized tech-

nology to improve patient communication, physician education, and further integration with inpatient CHF services.

#### **P-6 Community-Based Health Promotion**

*Kay R. Parent, R.N., M.P.H., Center for Healthy Communities*

**Purpose:** Community nursing centers were created in Dayton, OH, to detect risk factors for cardiovascular disease (CVD) within vulnerable populations who have poor access to health services. Individualized screening, education, behavioral change planning, and followup are elements utilized to increase the proportion of adults who are taking action to control high blood pressure and to modify other risk factors.

**Method:** Screening for blood pressure, cholesterol, glucose, and weight/body mass index (BMI) is provided. Assessment of physical activity, diet, and other risk factors is gathered for baseline. An individualized health plan, education, and referrals for needed health care services are provided. The nursing clinics run twice per week at two urban neighborhood locations—one in conjunction with a food pantry and the other during a weekly free meal. A registered nurse, a community health advocate, and nursing students assist in the clinics.

**Results:** Behavioral change is noted in decreased BMI, improved diet, increased activity, and smoking reduction. Coalitions are being developed in neighborhoods to promote walking programs, health and nutrition programs, and grassroots campaigns.

**Conclusions:** Neighborhood-based services with the involvement of community residents in the development of health promotion programming are a means of risk reduction for CVD.

#### **P-7 Whole Grain Intake in the United States: How Do We Achieve Three or More Servings Per Day?**

*Mark A. Pereira, Department of Medicine, Children's Hospital, Boston*

Healthy People 2010 objective 19-7 states: “Increase the proportion of persons aged 2 years and older who consume at least six daily servings of grain products, with at least three being whole grains.” Scientific evidence suggests that the achievement of this goal will lower rates of cardiovascular disease. Recent estimates suggest that only 2 percent of the population is meeting this goal and that average whole grain intake per capita is less than one daily serving. We propose several strategies to increase the likelihood of achieving this goal. These strategies include (1) community-based and national campaigns to educate the general public, (2) the inclusion of whole grain education in schools and government nutrition programs, (3) more whole grain foods in menus of schools and nutrition programs, and (4) increased usage of whole grain flours in the food supply by replacing some refined flour with whole grain flour. The latter

approach is analogous to replacing saturated fats in the food supply with unsaturated fat—a strategy that probably contributed to reduced rates of coronary disease. Academia, government, and industry must work together to achieve the nutrition and overweight goals of Healthy People 2010; otherwise, these goals are unlikely to be met.

### **P-8 Online CME To Assist Primary Care Physicians With Tobacco Cessation Treatment**

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*Mary P. Metcalf, Ph.D., Clinical Tools, Inc.*

The primary care physician can play a significant role in the success of tobacco cessation attempts. Two-thirds of all smokers are seen by a physician each year, and of those, smokers who were advised to quit were 1.6 times more likely to attempt quitting. Yet many physicians are still not making the effort. In one study, only 51.6 percent of physicians approached patients and advised them to stop smoking. Many of the physicians who do inquire about their patients' smoking habits do not offer specific cessation plans and thus are frustrated by their patients' lack of success. New treatment guidelines released in June 2000 are not yet familiar to many practicing physicians: physicians are not aware of appropriate treatment regimes with medications or the efficacy of counseling/followup. We developed an Internet-based course, *Tobacco Cessation: Four Case Studies*, based on the 2000 *Clinical Practice Guidelines* and existing NCI materials. An evaluation with 20 resident physicians demonstrated significant improvements in knowledge, attitude, and intended behavior. Evaluation is ongoing, and early data indicate that online CME on tobacco cessation is interesting to physicians and is likely to be successful in influencing their behavior with patients who use tobacco.

### **P-9 Attitudes, Knowledge, and Practices of Tobacco Cessation and Intervention Among Health Care Providers in a Hispanic Border Community**

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*Juan Carlos Zevallos, M.D., Community Voices, Luan Maria Coalwell, Mary Helen Mays, Ph.D., M.B.A., M.P.H.*

El Paso is a border community with more than 80 percent Hispanics located at the juncture of Texas and the Mexican city of Juarez in the State of Chihuahua. A recent random-digit-dialed telephone survey conducted among a representative sample of adults over 18 years of age living in El Paso showed that 23 percent were current smokers (those reporting having smoked at least 100 cigarettes and who smoked at the time of the survey).

The objective of the survey was to obtain information on attitudes, knowledge, and practices of tobacco cessation intervention programs among physicians, nurse practitioners (NP), and physician assistants (PA) affiliated with a local not-for-profit health organization, to develop a comprehensive tobacco cessation program tailored to a Hispanic community.

Self-administered questionnaires were delivered to 205 physicians, 28 NP, and 20 PA. Information from returned questionnaires showed that although the smoking cessation intervention demonstrated a reduction in tobacco use, and despite the high number of current smokers in El Paso, only 12 percent of providers considered treating tobacco-dependent patients their top priority, and 13 percent did not consider treating tobacco-dependent patients a priority at all. It was also reported that 67 percent of providers have attended only 0–2 hours of tobacco cessation education programs in the past 4 years.

### **P-10 A Process of Diagnostic Testing Data Retrieval Increases Eligibility; Hence Appropriate Medication Management for an Elderly Heart Failure Population**

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*Miriam Cannon-Wagner, CorSolutions, David Walker, Diane Soule, Richard Vance*

**Purpose:** The purpose of this study was to report the effectiveness of a heart failure (HF) condition management (CM) program in obtaining diagnostic testing results to evaluate HF patients for recommended practice guideline medications, such as ACEi and beta blockers.

**Methods:** Diagnostic test (ECHO, MUGA, and/or catheterization) results were requested for all HF participants enrolled in a CM program. In the analysis, 11,597 participants who were active in the program from April through June 2001 were included. The average age of a participant was 73.3 years, and 52.3 percent were female. The participants were referred from commercial and Medicare-Risk managed care insurers. HF diagnosis was identified by a recent hospitalization or emergency room event. Diagnostic testing and hospital records were requested from all providers. Clinical decision support software assisted nurses in obtaining testing, tracking retrieval rates, and documenting findings to verify systolic dysfunction and medication eligibility.

**Results:** Nurses requested diagnostic testing for the 11,597 participants during their time in the program. As of June 30, 2001, 79 percent of the participants had diagnostic testing results returned, regardless of their time in the program. The return rate for diagnostics for those in the program for at least 90 days was 88.9 percent. Eligibility for medications was restricted to systolic HF participants with diagnostics confirming  $LVEF \leq 40$  percent and further evaluation screens for medication contraindications or side effects. Initial and subsequent evaluation screens revealed that 46 percent of participants were eligible for practice guideline medications.

**Conclusion:** A systematic diagnostic testing retrieval system in an elderly HF CM population increases the utilization of appropriate medications as directed by practice guidelines.

**P-11** **Influence of Lovastatin Therapy on Serum Concentrations of Autoantibodies Against Oxidized LDL in Patients With Severe Primary Dyslipidaemia**

*Tatjana Metodi Ruskovska, M.Sc., CVZU - Voena Bolnica, Jordanka Dimovska, Anica Vasileva*

There is increasing evidence for elevated serum concentrations of autoantibodies against oxidized LDL (anti-oxLDL) in populations with increased risk for atherosclerosis.

The aim of this study was to determine the short-term influence of lovastatin therapy on serum concentrations of anti-oxLDL in patients with severe primary dyslipidaemia.

We selected 10 patients with severe primary dyslipidaemia and measured their lipid status and anti-oxLDL status before lovastatin administration and 6 weeks later. None of the patients experienced a change in his or her general health condition during the study, and there were no changes in patients' standard therapy.

There was significant improvement in lipid status in patients during the lovastatin treatment. At the same time, we found a significant decrease of anti-oxLDL for  $12.1 \pm 9.7$  percent from starting values,  $p < 0.01$ . Starting values of anti-oxLDL were very different and varied from 88 to 2,160 mU/mL.

The lowering of anti-oxLDL at the same time that lovastatin improves lipid status suggests the possibility for involvement of anti-oxLDL in atherogenesis as a risk factor. It remains unclear whether lovastatin is the only and the most efficient therapy for lowering anti-oxLDL and whether hypothetical lowering of anti-oxLDL independently from improving lipid status could lower the atherogenic risk.

**P-12** **Heart and Soul: A Faith-Based Approach to Cardiovascular Health in the Delta**

*Susanne S. Hill, Heart and Soul, Delta Area Health Education Center*

The National Heart, Lung, and Blood Institute (NHLBI) has contracted with the Delta Area Health Education Center to establish an enhanced dissemination and utilization center. The purpose of the center is to develop and implement interventions to improve cardiovascular health and to increase the percentage of adults who engage in heart-healthy behaviors. The center will also distribute NHLBI literature. The project will concentrate on two Arkansas Delta counties, St. Francis and Lee, both in the top 15 percent in the Nation for coronary heart disease and stroke mortality. This project will be implemented in 16 Delta churches, eight African American and eight Caucasian. Screenings of participants will occur during the initial health fair to be held in each church. Participants will receive a free personal wellness profile and various other health screenings. Over the next 3 years, participants will have the opportunity to attend presentations on healthy living, to have regular blood pressure checks, to attend a heart-healthy cooking school, to participate in smoking

cessation classes, and to learn cardiopulmonary resuscitation and first aid. It is anticipated that participants will be able to lead healthier lives as a result of this project.

**P-13** **Methodological Considerations in the Assessment of Physical Activity for Free-Living Mothers and Preschool Children**

*Nora L. Constantino, Ph.D., Department of Health Ecology and Nutrition Education Research, Suzanne Perumean-Cheney, Enid Coulston, Sachiko T. St. Jeor*

Physical activity (PA) plays a critical role in disease prevention and the treatment of obesity. The ability to accurately measure PA is fundamental to developing strategies for obesity treatment. Preschool children, either free-living or in a controlled setting, are a population in which PA has not been adequately assessed. Health Opportunities for Preschool Children to Optimize Their Cardiovascular Health (HOPSCOTCH) was developed to prevent obesity in preschool children (3 to 5 years of age) and employs the mother ( $34.80 \pm 6.85$  years  $32.62 \pm 5.29$  body mass index [BMI]) as the change agent. PA was assessed utilizing three instruments for the mothers (7-day activity records; 7-day Computer Science Applications, Inc., [CSA] accelerometers; International PA questionnaire [IPAQ]) and two instruments for the children (7-day activity records and 7-day CSA accelerometers). For the mothers, accurate record keeping and wearing of the monitors significantly limit the accuracy of the data. For the children, compliance, proper fit of the monitor, and accurate record keeping by the mother can also confound the data collected. Adequate number of days of data collection is also a consideration for the dyad. When assessing PA in both mothers and preschool children, multiple measures of PA help elucidate complex data. This study is unique because PA was assessed in 3- to 5-year-old children in a free-living condition and concurrently with the mothers.

**P-14** **Provision of Nutrition Advice in Primary Care Practices**

*Gail L. Underbakke, R.D., M.S., University of Wisconsin, Mary Beth Plane, Ph.D., Patrick E. McBride, M.D., M.P.H.*

Nutrition assessment and counseling of patients in primary care is recommended for health maintenance and disease prevention. The HEART Project reviewed medical records (MR) and patient questionnaires (PtQ) from 5,333 patients in 45 primary care practices in 4 mid-Western States and collected questionnaires from 160 physicians and 338 staff in those practices. According to MR reviews, 43 percent of patients had documentation of any type of nutrition advice; on PtQ, 34 percent of these patients reported receiving nutrition advice. Approximately half of hypertensive patients and patients with cholesterol  $> 200$  mg/dL had MR documentation of nutrition advice, but on PtQ, 57 percent of hypertensive patients and 86 percent of patients with cholesterol  $> 200$  mg/dL reported receiving nutrition advice. Seventy-two percent of all patients said that they wanted their physicians to talk to them about

nutrition, and 88 percent of those who received nutrition advice were satisfied with it. Practice staff reported providing nutrition advice less often than physicians provided it, but 92 percent of patients who received staff advice were satisfied with it. The provision and documentation of nutrition advice in primary care is important but is currently less than optimal. Practical and routine improvements likely will require organized practice systems and an increased role for practice staff.

### **P-15** **Nutritional Interventions in Interdisciplinary Rural Health Settings**

*Kim Shovelin, M.P.H., R.D., East Carolina University, NUHM, Sylvia Escott-Stump*

North Carolina ranks 16th in the Nation for poor intake of fruits and vegetables and for overweight. Poor nutritional intake is a risk factor for numerous chronic diseases, including cardiovascular disease. The current rural environment in eastern North Carolina provides only limited access to dietetic professionals. Our purpose was to develop nutritional interventions in interdisciplinary rural health sites that currently do not provide dietetic services. This goal was achieved through the Dietetic Internship Program at East Carolina University, by using dietetic interns to provide regularly planned nutrition programs and individual counseling.

Creative forms of nutrition education were used for both patients and interns via a traveling nutrition kit with videotapes, other visuals, food models, recipe adaptations, cooking demonstrations, and nutritional materials that are appropriate for various levels of literacy and vision. A new tool was created to address some of the key issues for this region.

The project demonstrated effective patient outcomes through interdisciplinary rural health nutritional interventions. The intent of the project was to serve 440 individuals and 440 group participants (880 total contacts). Interns and one half-time coordinator contacted 3,289 persons in the region and, through the media, reached 60,000 viewers during 1 year. In the upcoming year, interns will recontact participants to assess their current nutritional needs. This model has been implemented in other parts of the region where transportation to and from a health care provider is difficult.

### **P-16** **Pulse Wave Velocity: An Early Indicator of Arteriosclerosis in Premenopause and Menopause**

*Helen Marcoyannopoulou-Fojas, M.D., Evangelismos University Hospital*

The purpose of this study is to determine whether there is a difference in pulse wave velocity (PWV) in females before and after the age of menopause, compared to males. The PWV was determined indirectly, using infrared sensors to pick up the arterial pulses. The left external carotid and left dorsalis pedis arteries were taken as the central and peripheral pulses, respectively. Fifty-eight clin-

ically asymptomatic, non-obese individuals of average heights with normal blood pressure and ECG in sinus rhythm and normal blood lipids and sugar were studied. Of these 58 subjects, 29 were males (23 to 68 years of age), and 29 were females (19 to 69 years of age) without hormonal replacement therapy. The study showed that below the age of 39 years, the time of the PWV was significantly higher among females compared to males, and after this age (39 years), the time of the PWV in females became significantly lower. There is a definite statistically significant difference in the slopes for the corresponding curves: males - (0.0005x) and females - (0.0015x), with  $p < 0.05$ . We conclude that in our study, the PWV is higher among females than among males before the age of 39 years and shows a definite statistically significant reversal after this age. Being in the premenopausal age, we may assume that menopause adversely affects the elasticity of the arterial walls.

### **P-17** **Arterial Stiffness Changes Among Four Gender-Ethnic Groups of Children and Adolescents**

*WayWay M. Hlaing, M.B.B.S., Ph.D., Florida International University, Ronald J. Prineas, M.D., Ph.D.*

**Brief Statement of Purpose:** Most arterial stiffness studies have been conducted cross-sectionally in adult populations. The purpose of this study is to assess the longitudinal change of arterial stiffness among four gender-ethnic groups of the Minneapolis Children's Blood Pressure Study (MCBPS).

**Statement of Methods:** There are various ways of measuring arterial stiffness, and arterial pulse pressure (APP) is often used as a surrogate measure. APP is defined as the difference between systolic blood pressure (SBP) and fourth phase diastolic blood pressure (DBP4). The MCBPS is a prospective cohort study, and the initial measurements of SBP and DBP4 were made in 1978 (time 1). Measurements were made 12 years later in 1990 (time 2). The mean ages were 7.7 and 18.3 years at times 1 and 2, respectively. Analysis was restricted to those subjects who completed both timed measurements ( $n = 728$ ).

**Results:** There were 269 white males (WM), 224 white females (WF), 117 black females (BF), and 118 black males (BM). Mean APP levels at both times 1 and 2 were compared among the four gender-ethnic groups. Means and standard deviations of APP (mmHg) at time 1 were  $38.4 + 11.9$  (WM),  $35.8 + 11.3$  (WF),  $35.6 + 12.8$  (BF), and  $33.7 + 10.6$  (BM) ( $p < 0.01$ ). At time 2, APP levels were  $46.2 + 10.7$  (WM),  $39.4 + 8.9$  (WF),  $39.8 + 10.6$  (BF), and  $45.6 + 11.4$  (BM) ( $p < 0.01$ ).

**Conclusions:** Arterial stiffness levels were significantly different among the four gender-ethnic groups both in childhood and adolescent phases. These results would serve as a foundation for future etiologic studies.

**P-18 Patient Perceptions of Heart Failure Self-Management: A Test of Two Nursing Interventions**

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*Kay Setter-Kline, Ph.D., R.N., BSN Program, Grand Valley State University, Linda D. Scott, Ph.D., R.N., Agnes S. Britton, M.S., R.N.*

One aim of home health care is to assist in clients' development of self-management skills that will improve health, minimize complications, and reduce health care costs. Yet, nursing interventions used to strengthen self-management skills vary within agencies, and evidence of their effectiveness is limited. The identification of specific nursing interventions that will strengthen self-management and reduce hospitalizations for persons with heart failure (HF) is imperative. Therefore, this study will test the effectiveness of supportive-educative and mutual goal-setting nursing approaches on patient perceptions of HF self-management. A convenience sample of 100 subjects will be randomly assigned to 3 treatment groups in this blind, experimental study of patients receiving home care for HF. Currently, 80 subjects have been enrolled. All subjects receive nursing care for self-management as routinely administered by the home care agency. Additionally, subjects are assigned to one of the following intervention groups: group I, a placebo approach in which subjects receive general health teaching; group II, a supportive-educative approach in which subjects receive health teaching based on Orem's conceptual model; or group III, a mutual goal-setting approach in which subjects receive teaching based on King's conceptual model. The supportive-educative and mutual goal-setting approaches incorporate the HF guidelines from the Agency for Healthcare Research and Policy. Patient perceptions of their HF self-management abilities are assessed at baseline and at 3 and 6 months. Data collection will be completed by December 2001. Repeated analysis of variance with post hoc comparisons will be used for data analysis.

**P-19 Fit for Learning and Life: Virginia's Model School Cardiovascular Health Project**

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*Christy Colvin Mason, M.Ed., Hanover Health District, Sue Curry Whittaker, Crystal Michelle Rasnake, Jody Stones, Eric Walker*

Fit for Learning and Life is a model school project awarded to Goochland County Public Schools and Hanover Health District by the Virginia Department of Health's Cardiovascular Health Program. This project, which began in February 2000, focuses on creating environmental and policy changes to support increased physical activity and healthy dietary patterns to decrease the development of risk factors associated with cardiovascular disease. Phase I of the project, completed in summer of 2001, included assessment and strategic planning. Tools, including a site assessment instrument, key informant interview questions, and parent and student surveys, were developed to collect baseline data. Response rates for parent and student surveys were 54 percent and 73 percent, respective-

ly. The data identified environmental and policy barriers, such as a lack of time for physical activity, limited à la carte items in the school menu, and parents' perceptions of the school lunch program. A coalition including local stakeholders and community partners used the data to develop a strategic plan and to guide phase II strategy implementation. Through assessing the environment and policies of the schools, opportunities have been identified for community organizations to collaborate to overcome barriers to physical activity and healthy dietary patterns, thereby enhancing school health education programs.

**P-20 Heartworkers: Virginia's Model Cardiovascular Worksite Project**

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*Sue Curry Whittaker, R.N., Hanover Health District, Crystal Michelle Rasnake, Jody Stones, Eric Walker*

Worksite health promotion programs are a recognized avenue to improve the health and well-being of employees. Heartworkers is a health promotion program designed to reduce the risk of cardiovascular disease by providing supportive workplace environments and policies that increase opportunities for healthy eating practices and physical activity for employees of Hanover County, VA. Heartworkers, begun in February 2000, is a collaborative project of Hanover Health District, Virginia Department of Health's Cardiovascular Health Project, and other local partners. This project consists of four phases: assessment, strategic planning, implementation, and monitoring. Data collection tools, including a worksite assessment instrument, key informant questionnaire, and an employee survey, were developed. The completed assessment phase indicated that employees had limited access to healthy vending choices and facilities for physical activities, such as safe walking trails. In addition, key informant interviews revealed no formal policies supporting physical activity and healthy eating practices. Data will be used to design interventions and encourage environmental and policy changes. By identifying and increasing awareness of environmental and policy barriers to healthy behaviors, employers can implement strategies to overcome these barriers. Environmental and policy data can serve as a catalyst to encourage employers to support increased participation in healthy lifestyles.

**P-21 Development of a Hypertension Management Service in an Underserved Urban Population**

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*Charlene Aerilyn Hope, Pharm.D., Hope Med-Management and Wellness Services*

The purpose of this study is to develop and implement a hypertension management program that empowers patients to take control in managing their disease. The objectives of this study are to increase the proportion of adults with high blood pressure who are making necessary lifestyle modifications to control their blood pressure, such as losing weight, increasing physical activity, and reducing sodium intake. Medication compliance significantly impacts the achievement of desired treatment

outcomes as well as health care costs and utilization. The second objective of this study is to increase the proportion of adults with high blood pressure on drug therapy to maintain medication compliance and persistence.

Patients will either be referred by their primary care provider (PCP) or may self-enroll for services. Patients will be assessed and educated about risk factors for cardiovascular disease. Patients will be encouraged to set their own health care goals (e.g., to lose 10 pounds, to walk 30 minutes daily) and will be given recommendations on how to reach these goals. Patients on drug therapy will be assessed for medication compliance through a pharmacist-administered questionnaire. After barriers to compliance have been identified, the pharmacist will implement patient-specific interventions. Strategies to improve compliance include, and are not limited to, patient education regarding medication and disease state, pill boxes, providing patients with home blood pressure monitors, and applying for medications through the manufacturer prescription patient assistance programs. The measured outcome will involve the ability of service to support patients in reaching their health care goals and PCP clinical goals.

#### **P-22** Community Cardiovascular Project

*Cindi Miller, R.N., M.S., Community Health Education, Howard County General Hospital: A Member of Johns Hopkins Medicine*

**Purpose:** A random community survey of 515 households determined that 27 percent of the respondents had not been tested for high blood pressure in the previous 2 years. The purpose of the project is to detect hypertension in community residents, educate them on control, and refer them for treatment.

**Method:** Through a collaborative effort with 23 faith communities, Howard County General Hospital: A Member of Johns Hopkins Medicine developed the Community Cardiovascular Project. It includes a training session and all-inclusive kits for nurse volunteers in faith communities. These kits contain blood pressure measurement supplies, educational posters, handouts, wallet cards, and physician referral letters. The nurses conduct the screenings a minimum of once a month.

**Results:** During the first 15 months of the project, a total of 1,087 persons were screened for hypertension and educated about whether their blood pressure was normal or high. Through physician referrals and education by the nurses, many participants have been placed on medication and are engaging in lifestyle changes for hypertension control.

**Conclusions:** Large numbers of people can be screened, educated, and treated for hypertension control through collaborative efforts between hospitals and faith communities.

#### **P-23** Implementation of an Innovative Community-Based Heart Disease and Stroke Risk Reduction Program (INTERxVENT)

*Neil F. Gordon, INTERxVENT USA, Inc., Brenda S. Mitchell, Ph.D., N. Gordon, R. Salmon, C. Faircloth, I. Levinrad, W. Saxon, K. Reid, S. Salmon*

We have developed, tested, and successfully implemented an affordable, evidence-based, comprehensive cardiovascular disease (CVD) risk reduction program for use in primary and secondary prevention settings. The program, INTERxVENT, can be administered in a standardized, but individualized, way to large numbers of people with or at risk for atherosclerotic CVD and stroke in a variety of medical and nonmedical environments. Program delivery sites have been established in many cities and towns in the United States and currently include (a) hospitals, (b) physician practices, (c) cardiac rehabilitation programs, (d) shopping malls, (e) worksites, and (f) health clubs. The program is also delivered from a call center using telephone, the Internet, and mail. Program staff are guided by a computerized participant management and tracking system. Lifestyle interventions are based on several behavioral change models, primarily, social learning theory, the stages of change model, and single concept learning theory. At most sites, the program is administered entirely by nonphysician health care professionals. Outcome data, including data from randomized clinical trials, have confirmed the cost-effectiveness and reproducibility of this approach. Practical experiences support the feasibility of increasing access to affordable CVD risk reduction services throughout a community via the widespread implementation of INTERxVENT programs.

#### **P-24** Clinical Effectiveness and Reproducibility of a Corporate Cardiovascular Disease Risk Reduction Program

*Neil F. Gordon, INTERxVENT USA, Inc., Sheldon Warman, Richard Salmon, Brenda S. Mitchell*

Rapidly escalating health care costs are causing employers to focus unprecedented attention on chronic disease prevention. In this study, we evaluated the clinical effectiveness and reproducibility of a comprehensive cardiovascular disease (CVD) risk reduction program (INTERxVENT) administered to employees at companies in three different U.S. cities (designated A, B, and C). Employees ( $n = 1,483$ ) were evaluated at baseline and after approximately 12 weeks. The program was administered in each city by nonphysician health care professionals guided by a computerized participant management system. For participants with abnormal baseline risk factors, clinically relevant improvements were observed for multiple variables as follows ( $p < 0.05$  unless otherwise indicated): systolic/diastolic blood pressure, City A = -17/-10 mmHg, City B = -20/-12 mmHg, City C = -13/-13 mmHg; total cholesterol, City A = -30 mg/dL, City B = -44 mg/dL, City C = -34 mg/dL; LDL cholesterol, City A = -16 mg/dL, City B = -29 mg/dL, City C = -21 mg/dL; HDL cholesterol, City A = 5

mg/dL, City B = 4 mg/dL (p = NS), City C = 0.4 mg/dL (p = NS); triglycerides, City A = -73 mg/dL, City B = -30 mg/dL (p = NS), City C = -53 mg/dL; weight, City A = -3 lbs, City B = -9 lbs, City C = -5 lbs; and fasting glucose, City A = -32 mg/dL, City B = -35 mg/dL, City C = -36 mg/dL. These data demonstrate that a comprehensive CVD risk reduction program can elicit clinically relevant and reproducible improvements in the risk factor status of employees with abnormal baseline values.

### **P-25 Cardiovascular Health Risk Behavioral Practices of African Americans in Mississippi During the 1990s**

*Clifton C. Addison, Ph.D., Jackson Heart Study*

**Background:** Cardiovascular disease is the leading cause of death and the single greatest contributor to excess mortality in African Americans. The atherosclerotic process begins in childhood and progresses into adulthood. A limited number of behaviors contribute markedly to cardiovascular disease. These behaviors, often established during youth, include tobacco use, unhealthy dietary behaviors, inadequate physical activity, and obesity.

**Methods:** Data were collected using the Youth Risk Behavior Survey (YRBS) for students and the Behavior Risk Factor Surveillance System (BRFSS) for adult, examining four health risk behaviors, tobacco use, dietary behaviors, physical activity, and overweight. These data provide an important insight into the apparent origins of cardiovascular disease and cardiovascular-related diseases in African Americans.

**Results:** Both youths and adults have decreased their participation in regular/sustained exercise. The frequency of poor dietary practices was considerable, and even though the numbers of overweight African American youths have declined slightly, the number of overweight adults increased. African American youths have increased cigarette smoking, and the adult smokers have increased in numbers throughout the 1990s.

**Conclusions:** A very important challenge for the prevention of cardiovascular disease is to decrease the number of people engaged in unhealthy lifestyle behaviors. Recent research has shown that overall mortality and cardiovascular disease mortality are higher in African Americans than in Whites. This investigation provides evidence that the extent of health risk behaviors, such as a lack of physical activity, poor dietary habits, overweight, and cigarette smoking in late childhood and early adolescence may constitute important risk factors for the onset of cardiovascular disease in adulthood.

### **P-26 Addressing the Risk of Patients With "Isolated" Low HDL—Should Raising HDL Be the Sole Objective?**

*J.D. Otvos, Ph.D., LipoMed, Inc., and Lipoprotein and Metabolic Disorders Institute, W.C. Cromwell*

Understanding the origins of the enhanced cardiovascular disease risk of patients with "isolated" low HDL, defined

as a low level of HDL-cholesterol (HDL-C) without elevated LDL-cholesterol (LDL-C), is necessary for the development of optimal treatment strategies. There are two separate and independent contributors to low HDL risk: (1) the absence of the protection that would otherwise exist with a higher level of HDL and (2) the presence of the metabolic syndrome, characterized, in part, by insulin resistance; elevated triglycerides; a lipoprotein subclass pattern of predominantly large VLDL, small LDL, and small HDL; and elevated numbers of LDL particles relative to LDL-C levels. In clinical practice, it is important to differentiate the low HDL patients who carry the added risk burden of the metabolic syndrome from those who do not, since treatment decisions and targets of therapy will differ. Insights into the origins of low-HDL risk are provided by the lipoprotein subclass profiles of more than 3,400 subjects from the Framingham Offspring Study, measured by nuclear magnetic resonance spectroscopy. The variation of these profiles as a function of HDL-C provides striking evidence that excess LDL particle number and small LDL size are important contributors to the risk of many individuals with low levels of HDL-C. These people, who would not normally be recognized as having an LDL problem, would benefit from LDL-lowering therapy in addition to treatments designed to raise HDL.

### **P-27 Women's Hearts Are Different: The Development and Implementation of a Primary Prevention Program, the Womancare Heart~Check Program**

*Mary R. Dortenzo, M.S.N., N.P., Women's Specialty Program, Magee-Women's Hospital of UPMC*

Recognizing that heart disease is the leading cause of death in women in the United States, the Womancare Heart~Check Program is a unique program designed to address cardiovascular disease in women. The major focus of this program is on the primary prevention of heart disease. Our goals are early detection of heart disease, identification of women who are at an increased cardiovascular risk, and education on aggressive risk reduction strategies.

The idea that women's hearts are different has provided the foundation for the development of this program. While we have long recognized the gender difference in heart disease, unfortunately most women have not. In fact, most health care professionals have not. Through our program, we have been able to heighten the awareness in both the lay and medical communities that heart disease is a women's health issue.

The Heart~Check Program is a consultative service offering a complete cardiovascular risk assessment during a 1-hour session with a nurse practitioner practicing in cardiology. During the 1-hour visit, risk factors are identified. A lipid profile is completed and resulted immediately. Recommendations are made according to the National Cholesterol Education Program Guidelines. Blood pressure is measured, body mass index is calculated, and a 3-day dietary log is reviewed and analyzed with the help of

a computer program. Individual counseling on risk reduction strategies consumes the majority of the 1-hour session.

From 27 participants in the first 6 months to approximately 400 by the end of 48 months of operation, the number of women participating in this comprehensive risk assessment program continues to steadily increase.

### **P-28 Addressing Health Disparities in Middle School Nutrition and Exercise**

*Marilyn Frenn, Ph.D., R.N., Marquette University College of Nursing, Shelly Malin, Yvonne Greer, M.P.H., R.D., Michael Havice*

**Purpose:** A four-session (Internet and video) with healthy snack and gym labs intervention was tested in two urban, low-to-middle income middle schools to examine improvement in Healthy People 2010 Objectives 19–9, 22–6 and 7 and as a cost-effective approach to increase the number of schools addressing nutrition and exercise (Objective 7–2). Differences in response to the intervention for race, income, and gender will be described, given those with low income; especially females of African American and Hispanic heritage have the greatest risk of inactivity and obesity.

**Methods/Process:** The intervention incorporated concepts from the transtheoretical and health promotion models using instruments previously found to be valid and reliable with a culturally diverse middle school population. An experimental design was used with assignment to group by classroom.

#### **Results:**

- Moderate and vigorous activity were increased ( $p = 0.014$ ) for Black, Caucasian, Hispanic, and Asian students.
- The gym lab was particularly beneficial ( $p = 0.002$ ) for low-income students and females.
- Fat in diet decreased with each Internet session in which students participated and was reduced significantly ( $p = 0.018$ ) for Black, Hispanic, and Caucasian girls.

**Conclusions:** The tailoring of interventions delivered through modern technology may enable the reduction of health disparities in students consuming no more than 30 percent of calories from fat and increasing the proportion of adolescents who engage in moderate and vigorous physical activity. Given the need for cost-effective interventions in schools, such approaches may help to address a number of Healthy People 2010 objectives.

### **P-29 A Web-Based Tobacco Cessation Counseling Program: Pilot Test Results**

*Lynne Janice Goebel, Marshall University, Todd W. Gress, Kim Ashcraft, M.S., M.S.N., R.N., C-F.N.P.*

**Introduction:** Many tobacco users do not receive cessation counseling from their providers. Providers may not have access to the training necessary to offer effective counseling. A Web-based program would easily disseminate

training to all providers with Internet access. The purpose of this study is to pilot test the ability of a Web-based tobacco cessation provider training program to improve knowledge of tobacco cessation counseling strategies and to increase the acceptance of using these strategies in practice.

**Methods:** Eleven internal medicine residents participated in a pilot test of the educational materials to be used in the Web program. Residents took a pretest, received training, and then took a posttest. Pretest and posttest results were compared using student's t-test.

**Results:** We found significant improvement in attitudes about current knowledge of cessation counseling ( $p < 0.001$ ), comfort level in using the counseling ( $p < 0.001$ ), and confidence that the provider would be effective ( $p = 0.01$ ). Confidence that the training would be used in practice was not significantly increased but was already high in the pretest. A knowledge score, calculated by combining the results of seven clinical vignette questions, was significantly increased after the training ( $p = 0.005$ ).

**Discussion:** Pilot results show that the content of a Web-based tobacco cessation provider training program is effective at increasing knowledge of tobacco cessation counseling strategies and improving attitudes towards using these strategies. Future research will test the Web program in medical and nursing students and compare the Web training to traditional lecture format.

### **P-30 Incidence, Location, and Observation Status of Out-of-Hospital Cardiac Arrest in Two Community Cohorts**

*Lambert Anthony Wu, M.D., Mayo Clinic, Thomas E. Kottke, M.D., M.S.P.H., Mark J. Brekke, M.S., Lee N. Brekke, Ph.D.*

**Background:** We wanted to define the locations of out-of-hospital cardiac arrest (OHCA) in a community to assist in determining a strategy to decrease morbidity and mortality from cardiovascular disease.

**Methods:** We reviewed two cohorts of residents from Olmsted County, MN. Cohort 1 included Rochester, MN, individuals who suffered an OHCA as an incident CHD event between 1960 and 1979. Cohort 2 was a 10 percent random sample of Olmsted County individuals with OHCA from coronary heart disease between 1981 and 1994. Event rates were age- and gender-adjusted to the 1980 U.S. population, 30 years or older.

**Results:** In cohort 1, 81 percent of the events occurred in private homes, and 19 percent occurred in public areas. The event was definitely observed in 24 percent and definitely not observed in 21 percent. In cohort 2, 79 percent of events occurred in private homes; 15 percent occurred in public places; and 6 percent occurred in unknown locations. The event was definitely observed in 37 percent, definitely not observed in 50 percent, and of unknown status in 13 percent. The event rates were 61/100,000 and 137/100,000 person-years in cohorts 1 and 2, respectively.

**Conclusions:** These data indicate that a significant proportion of out-of-hospital cardiac arrests occurring either as sentinel or recurrent coronary events are not observed, and a significant proportion occur in private homes. Strategies to impact the problem should go beyond enhancing resuscitation in public places and include primary prevention, community education to call 911, and maintenance of an effective first-responder team, in addition to the strategic placement of automatic external defibrillators in public locations.

**P-31** **Menu Labeling To Encourage the Selection of Entrees With Less Than 1,000 mg Sodium, Less Than 500 Calories and Less Than 7 Percent Saturated Fat**

*Thomas E. Kottke, M.D., M.S.P.H., Mayo Clinic/CardioVision 2020, Rebecca Sue Hoffman, B.A.*

**Purpose:** Dining in restaurants can interfere with an individual's dietary goals because they are unaware of the portion size or sodium and fat content of the menu items that they may select. To address this problem, CardioVision 2020 organized a voluntary menu-labeling program to allow restaurant patrons to select meals of limited sodium and fat content and limited calorie content.

**Methods:** Restaurant managers in Olmsted County, MN, were asked in person whether they would be willing to participate in the program. Interested managers were invited to submit menu items that they thought contained < 1,000 mg sodium, < 500 calories, and < 7 percent of calories from saturated fat. Submitted menu items were analyzed using Computrition<sup>®</sup>, and those that met the criteria were identified with the CardioVision 2020 "runner." A label was attached to each menu reading, "The CardioVision 2020 runner indicates that the entree contains < 1,000 mg sodium and < 500 calories of which < 7% come from saturated fat." The full analysis of the labeled menu items was filed in the restaurant office.

**Results:** Restaurant managers have been enthusiastic about the program. Even though many of their menu offerings do not meet CardioVision 2020 criteria, labeling adds value to their menu and results in free promotion of their restaurant. The program also advertises CardioVision 2020, a comprehensive heart disease prevention and treatment program.

**Conclusion:** A voluntary menu-labeling program is feasible and offers the opportunity for patrons to identify menu items that meet goals of low fat and sodium and limited calories.

**P-32** **Attempts at Changing Diet and Exercise to Lower the Risk of Coronary Heart Disease and Stroke: Who's Doing What in the Community?**

*Randal J. Thomas, M.D., Mayo Clinic and Foundation, Thomas E. Kottke, M.D., M.S.P.H., Stephen W. DeBoer, Mark Brekke*

**Methods:** While few people follow a low-fat diet and do daily physical activity, it is unclear how many are trying to improve these lifestyle habits. We performed a random telephone survey of 1,232 adults, who were more than 20 years of age and were from Olmsted County, MN, to assess their attempts at improving their dietary and exercise habits to lower their cardiovascular disease (CVD) risk.

**Results:** Fifty-nine percent of respondents reported attempts to improve exercise their habits, 71 percent reported attempts to improve their eating habits, and 50 percent reported attempts to improve both. In all, 80 percent reported trying to improve their exercise and/or dietary habits. Of those trying to change their exercise habits, 69 percent reported daily physical activity (Pearson correlation = 0.34). Of those attempting to change their dietary habits, 31 percent reported eating at least five servings of fruits and vegetables daily (Pearson correlation = 0.14). Attempts to change diet or exercise were highest in persons trying to lose or maintain weight and in persons who reported having received previous physician advice to change their dietary and exercise habits.

**Conclusions:** Most adults in Olmsted County, MN, are attempting to change their exercise and dietary habits to reduce CVD risk, but only a minority are meeting the recommended goals. Since most people are in the action phase of lifestyle change, health promotion messages should include information on how best to improve and maintain current lifestyle modification efforts. Furthermore, there is an opportunity for health care providers to impact their patients' health by providing advice to improve their patients dietary and exercise habits.

**P-33** **Dietary Guidelines for Americans 2000: Maryland Training Initiative**

*Carol R. Miller, R.D., L.D., Maryland Department of Health and Mental Hygiene, Division of Cardiovascular Health & Nutrition*

The Division of Cardiovascular Health & Nutrition, Maryland Department of Health and Mental Hygiene, collaborated with the Maryland Department of Education to obtain a USDA Team Nutrition Training Grant to conduct effective nutrition education activities on the Dietary Guidelines for Americans 2000. Grant objectives included training a cadre of health professionals, school teachers, administrators, nurses, and food service employees and the development of a center to distribute nutrition educa-

tion materials. All training sessions included pretesting and posttesting of attendees; training on the Dietary Guidelines for Americans, with activities modified for the target audience; and followup use of educational materials. Tabletop exhibits for each Dietary Guideline were developed, which emphasized serving size and educational activities. To date, workshops have been conducted for more than 500 attendees, and more than 6,000 pieces of nutrition education materials have been distributed. Grant training activities continue through December 2001, when overall grant evaluations will be summarized. This grant demonstrates the strengths of collaborative nutrition education training programs to a large audience of health professionals and school personnel statewide.

#### **P-34** **Provider Feedback Improves Adherence With AHCPR Guideline**

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*Jeannette O. Andrews, Medical College of Georgia*

**Background:** This study evaluated the effect of primary care providers' adherence to the AHCPR Smoking Cessation Guideline after receiving a multicomponent intervention. The Guideline recommendations are summarized as the "4As": (1) all patients are asked about smoking status, (2) smokers are advised to quit smoking, (3) smokers are assisted to quit smoking, and (4) arrangements are made for the followup for smokers who are committed to quit.

**Methods:** A quasi-experimental study with one intervention and one control team was conducted in a southeastern VA primary care setting. Chart reviews (n = 637) of providers' adherence to the 4As (ask, advise, assist, arrange) were conducted over three phases: baseline, after an educational intervention, and after provider feedback.

**Results:** A nested, repeated measures, two-factor analysis of variance was performed for each of the following outcomes: ask, advise, assist, and arrange. Data analyses revealed that both teams had 100 percent compliance in asking the patient about smoking status. Education on tobacco dependence and the AHCPR Guideline had no significant impact on provider performance with the advisement, assistance, and arrangement of followup. However, significant improvements occurred in the intervention team in the advisement (p = 0.05), assistance (p = 0.001), and arrangement of followup (p = 0.001) phase after individual and team feedback was provided. This research supports that feedback impacts individuals and team performances and facilitated positive system changes to improve provider adherence to the AHCPR recommendations in treating tobacco dependence.

#### **P-35** **A Model for Medical Student Training in Nutrition and Cardiovascular Disease Prevention**

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*Kimberly Ruth Welch, M.P.H., Nutrition and Chronic Disease Prevention, Mercer University School of Medicine, Brian W. Tobin, Ph.D., Colleen M. Smith, Ph.D., M. Marie Dent, Ph.D.*

To reduce cardiovascular disease (CVD) risk and premature disability, Mercer University School of Medicine initiated the Nutrition and CVD Prevention Program for training medical students. Healthy People 2000/2010 goals were used to develop program objectives, which include (1) enhancing medical students' recognition of the importance of nutrition and overweight and physical fitness and activity in the prevention of CVD and (2) promoting appropriate lifestyle changes in patients.

Presentations in the Medical Education Seminar Series educate faculty on preventive medicine curricula. Utilizing the Northwestern University School of Medicine Nutrition Attitude Survey will assess the impact of the curriculum on medical students.

In addition, several curricular interventions were introduced to the problem-based curriculum. In this curriculum, Community Medicine integrated a session entitled "Disease Prevention and Health Promotion: A Focus on Lifestyle Determinants of Health." Basic Sciences developed specific behavioral learning objectives and incorporated appropriate "clues" into case histories for cellular, cardiology, and endocrinology phases. During these phases, students are encouraged to apply nutrition and exercise principles to their own health by (1) determining their own blood glucose levels and (2) conducting a dietary recall for nutrient analysis.

The implementation of this program is designed to train physicians who will serve as role models for their patients and communities by adopting a preventive health lifestyle. A preclinical medical student wellness program is also proposed as part of this curriculum to increase retention and cognition of physical fitness and preventive medicine among students.

#### **P-36** **Walking and Resting Blood Pressure: A Meta-Analysis**

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*George A. Kelley, D.A., MGH Institute of Health Professions, Kristi Sharpe Kelley, Zung Vu Tran*

**Introduction:** Walking is the most popular physical activity among adults in the United States, and elevated resting blood pressure is a major public health problem in the United States.

**Major Objective:** The major objective is to use the meta-analytic approach to examine the effects of walking on resting systolic and diastolic blood pressure in adults.

**Methods:** Studies were retrieved via (1) computerized literature searches, (2) cross-referencing from original and review articles, and (3) an expert's review of the reference list. Inclusion criteria were as follows: (1) randomized and

nonrandomized trials that included a nonintervention control group or control period; (2) walking as the only intervention; (3) subjects apparently sedentary; (4) English language journal articles, masters theses, and doctoral dissertations; (5) resting systolic and/or diastolic blood pressure assessed; and (6) training studies lasting a minimum of 4 weeks. All studies were coded independently by the first two authors, and every item was reviewed for accuracy and consistency. Discrepancies were resolved by consensus. Net changes in blood pressure were calculated as the exercise minus control group difference.

**Results:** Sixteen studies that included 37 groups (21 exercise, 16 control), 650 subjects (410 exercise, 240 control), and 24 primary outcomes for analysis met our criteria for inclusion. Using a random effects model, statistically significant and clinically important decreases of approximately 2 percent were found for both resting systolic and diastolic blood pressure (systolic, mean  $\pm$  SEM =  $-3 \pm 1$  mmHg, 95 percent confidence interval =  $-5$  to  $-2$  mmHg; diastolic, mean  $\pm$  SEM =  $-2 \pm 1$  mmHg, 95 percent confidence interval =  $-3$  to  $-1$  mmHg). Changes in blood pressure were independent of changes in body weight, body fat, and body mass index. A statistically significant, exercise-induced increase of approximately 12 percent was observed for maximum oxygen consumption (mL/kg/min).

**Conclusion:** Walking exercise programs reduce resting systolic and diastolic blood pressure in adults.

**P-37** **Coronary Calcium Scores by Electron Beam Computed Tomography Correlated With Positive Changes in Lifestyles, Including Healthier Diet, More Exercise, and Less Smoking**

*Thomas Knickelbine, Minneapolis Heart Institute Foundation*

**Purpose:** This study examined the relationship between coronary calcium scoring results as detected by Electron Beam Computed Tomography (EBCT) and subsequent changes in dietary habits, smoking, and exercise level.

**Methods:** A survey was conducted on the first 2,200 patients scanned at our institution from September 1999 to June 2000. Participants graded changes in their eating, exercise, and smoking habits since their scan and whether they attributed the changes to knowledge of their EBCT results. Changes were graded from  $-2$  to  $+2$  (four increment levels) for less healthy, less active, or smoke more versus more healthy, more active, or smoke less for the categories of diet, activity, and smoking, respectively. Zero represented no change in lifestyle.

**Results:** Of the 818 individuals who responded to our survey, 38 percent (307) indicated that the EBCT scan significantly influenced their lifestyle. Seventy-one percent had a more healthy diet, 61 percent were more active, and 62 percent smoked less after knowing their coronary calcium score result. A positive correlation ( $R^2$  value 0.966 diet,

0.912 exercise) was seen between increases in CAC scores and greater changes in dieting and exercise.

**Conclusion:** Coronary calcium scoring results can promote significant favorable changes in lifestyle, including healthier diet, more exercise, and less smoking.

**P-38** **The Availability and Cost of DASH Diet Foods in the Jackson, Mississippi, Metropolitan Area**

*Alan David Penman, M.D., M.P.H., Mississippi State Health Department*

**Purpose:** Widespread adoption of the DASH diet could lead to a population shift in BP levels and consequent reductions in hypertension prevalence and stroke mortality, both of which are high in Mississippi. Important barriers to adopting the DASH diet may be the availability and cost of the foods, particularly for low-income persons. We determined the availability and cost of DASH diet foods purchased at different locations across the Jackson metropolitan area.

**Methods:** A list of DASH diet foods was drawn up, with a description of each item, manufacturer, and quantity/size. Each major food retailer was visited on three occasions at 1- to 2-week intervals to get an average price per item. Demographic and socioeconomic data were obtained from the Bureau of the Census and commercial data vendors. Cardiovascular disease (CVD) mortality data were obtained from the Bureau of Public Health Statistics (Mississippi State Department of Health). Data were mapped using ArcView 3.2 GIS software.

**Results:** The availability and cost of DASH diet foods vary across the metropolitan area. The availability and cost of foods in areas with different socioeconomic characteristics and CVD mortality rates will be presented.

**Conclusions:** More attention should be given to the availability and cost of DASH diet foods.

**P-39** **On the Move: Blood Pressures on the Bus**

*Anita P. Sherer, R.N., M.S.N., Moses Cone Heart and Vascular Center, Joan Behrens, R.N., B.S.N.*

It is hard to find time to have your blood pressure checked. Why not check it the next time you ride the bus? Our heart disease prevention program has partnered with our city's transit authority to take our blood pressure screenings on the road. Once a month, nurse health educators catch the bus and lots of high blood pressure too. Bus riders are offered free blood pressure checks while they ride to their destination. Brief counseling is provided on lifestyle changes to prevent and control high blood pressure. Thirty-nine percent of the passengers have high blood pressure. These passengers receive focused counseling on medication administration, lifestyle changes, and physician followup. Approximately 3–5 new cases of high blood pressure are diagnosed at each screening and referred for followup. This unique program provides easy access to free blood pressure screenings and offers on-

the-spot education targeted to the individual's needs. We are on the move and are making a difference in the heart health of our community.

#### **P-40 Easy Access, Better Control**

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*Anita Peden Sherer, R.N., M.S.N., Moses Cone Heart and Vascular Center, Kristen Wither Yntema, M.B.A., M.H.S.A., Joan Behrens, R.N., B.S.N.*

A blood pressure check only takes 30 seconds, and it can save a life. Since one-third of those who have high blood pressure do not even know it, our community blood pressure screenings offer easy access that can lead to better control. Our heart disease prevention program offers free lunchtime blood pressure screenings at libraries, stores, and restaurants once a week. Customers or visitors stop for a quick blood pressure check as they run errands or go to lunch. Many of our participants are drop-ins, while others are regular visitors who make a special trip to our various locations. Screenings are advertised via flyers and newspaper ads. Brief counseling is offered on ways to prevent and control high blood pressure and on the need for physician followup. In the past 18 months, 5,650 participants have been screened. Fifty-four percent have had normal blood pressures, as compared to 46 percent who had high blood pressures. Approximately 3–5 new cases of high blood pressure are diagnosed at each screening. This free community service offers easy access for adults to have their blood pressure checked, and if participants' pressures are high, the program provides assistance to control their blood pressures.

#### **P-41 Assessing and Improving Knowledge of Heart Attack Symptoms**

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*Bianca Grigorian, Mount Sinai Medical Center, Leslie Zun, Pilar Guerrero*

**Objective:** The objective of this study was to determine whether the use of an information pamphlet in an emergency department would improve patients' knowledge about symptoms of a heart attack.

**Methods:** Adult communicative patients were enrolled from a level 1 trauma center. Patients completed a questionnaire on the most common warning signs of a heart attack. A pamphlet, "Signs of a Heart Attack," was distributed and reviewed with the patients. After completing the survey, patients were told that they would receive a phone call in 1 and 4 weeks to assess their retention level. IRB approved the study.

**Results:** Sixty enrolled, 33 were available for followup, and 27 were lost to followup. Demographics included 61 percent female, 39 percent male, 52 percent African American, 42 percent Hispanic, 55 percent under 45 years of age, and 45 percent at 46 years of age or older. A paired samples test showed a significant improvement in the number of correct responses ( $p = 0.00$ ; 95 percent CI between 1.43–3.06). A significant difference in the mean improvement on the knowledge of the warning signs ( $p =$

0.02) was seen in the female group as compared to the other groups.

**Conclusion:** Although this study was limited by a small sample size, an improvement in participants' knowledge of heart attack warning signs was seen in all groups. The largest improvement was seen in the female population.

#### **P-42 Nutritional Behaviors of Cardiac Rehabilitation Patients**

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*Charles Jeffrey Frame, Ph.D., R.D., Murray State University*

Selecting appropriate nutrition education for cardiac rehabilitation patients requires a clear understanding of each patient's readiness to change nutritional behaviors. If a patient's readiness to change is understood, the optimal change catalyst can be selected and applied through patient education.

A cross-sectional study of 226 newly admitted cardiac rehabilitation patients assessed patients' readiness to change nutritional behaviors using Prochaska's five-stage readiness to change model: precontemplation, contemplation, preparation, action, and maintenance. To support patients' readiness to change nutritional behaviors, food frequencies measured energy intake from dietary fat and daily servings of fruits/vegetables.

Results showed that 78.7 percent of patients were in action or maintenance stages for reducing dietary fat intake. In contrast, 81 percent of patients were in precontemplation or contemplation stages for increasing fruit and vegetable intakes to five a day. Food frequency data supported nutrition behavior assessments. Results were consistent irrespective of patients' body mass index, age, education, or family cardiac history.

This study indicates strong support that cardiac patients are in different readiness stages simultaneously for two different nutritional behaviors, even though both behaviors are closely linked to cardiac health. Patients could benefit with stage-matched health education on specific food groups, enabling the patient to adopt optimal, long-term change in nutritional behavior.

#### **P-43 S.T.E.P.S. for a Healthy Heart: Strategies Toward Environment and Policy Success**

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*Cathy Ryan, S.T.E.P.S. for a Healthy Heart: Strategies Toward Environment and Policy Success, Nebraska Department of Health and Human Services*

**Purpose:** It is estimated that the cost of cardiovascular disease in the United States in 2000 was \$326.6 billion. Cardiovascular disease continues to be a major health problem, and achieving the Healthy People 2010 objectives, particularly in the case of cardiovascular disease prevention, requires widespread application of community-based interventions.

**Methods/Process:** Well-funded, community-based research and demonstration programs have enhanced

our understanding of methods to improve the cardiovascular health status of entire communities. A multilevel, multifactorial approach is needed to comprehensively prevent and control cardiovascular disease. Such an approach is being integrated in communities across Nebraska by ensuring that each community can access resources for the improvement of cardiovascular health. The Nebraska Health Initiative lays out the necessary tools to assist public and voluntary health agencies in implementing community-based initiatives. The initiative contains supportive data, planning and assessment tools, and intervention strategies that empower communities to develop a comprehensive plan to address the promotion of cardiovascular health or to augment an already existing one.

**Results/Conclusions:** A wealth of research makes it clear that inactivity and poor nutrition are responsible for thousands of unnecessary deaths, illnesses, and disabilities associated with chronic diseases. Physical activity and good nutrition play critical roles in promoting and reducing the risk for chronic diseases. Communicating this message alone is not enough. If people are to maintain healthy behaviors, such changes must be supported by programs and policies and by the environments in which people live.

#### **P-44 Addressing Health in Urban Communities of Color: Partnering With Faith Communities**

*Margaret O. Casey, R.N., M.P.H., Healthy Heart Program, New York State Department of Health*

**Purpose:** The purpose of this study was to increase physical activity and healthy eating in urban areas of New York State by promoting environmental and policy changes.

**Methods:** A workgroup of leaders of faith-based organizations was formed to provide insights into barriers to healthy behaviors within their congregations and suggestions for strategies to overcome these barriers. Seven focus groups were held in faith communities throughout New York City; participants were asked about their beliefs and practices regarding nutrition, physical activity, and cardiovascular disease and about barriers to healthy nutrition and physical activity within their communities. Community-tailored approaches were developed and used as the basis of a Request for Applications for mini-grants to faith-based organizations in New York City and Buffalo.

**Results:** Eleven individual faith communities in New York City and 15 coalitions in Buffalo were provided with funding, which was used to develop sustainable programs that increased healthy eating and physical activity for congregation members and residents of the local community.

**Conclusions:** Small amounts of funding can be utilized by local faith-based groups to make permanent changes in communities of color, changes that promote health and reduce risks for chronic diseases.

#### **P-45 Growing the Program: Two and a Half Years of Centers for Disease Control and Prevention's Support to the New York State Healthy Heart Program**

*Margaret O. Casey, R.N., M.P.H., Healthy Heart Program, New York State Department of Health*

**Objective:** The objective of this study was to summarize the growth of the New York State Healthy Heart Program since Centers for Disease Control and Prevention (CDC) comprehensive State funding began.

CDC support to the established New York State cardiovascular health (CVH) prevention and control program has already produced a variety of results in the program's infrastructure, network of internal and external partners, depth of program monitoring and surveillance capacity, and intensity of commitment to environmental and policy approaches to CVH promotion. These will be described critically. Program areas needing additional energy and resources will also be presented.

**Conclusions:** After just 2 1/2 years, CDC funding has produced benefits beyond those defined in the original request for funding. CDC funding brings with it national attention and new connections with colleagues in other States. These are significant byproducts of the current comprehensive grant.

#### **P-46 Cardiac Troponin I in Patients With Acute Myocardial Infarction and Unstable Angina**

*Najla'a Abdul Aziz Ben Selim, M.D., Northern Area Armed Forces Hospital*

**Objective:** The objective of the research was to assess the place of cTnI in the initial management of acute myocardial infarction (AMI) and unstable angina in our institution and the concordance between creatine phosphokinase MB and cTnI.

**Patients and Methods:** We reviewed retrospectively the charts of 32 patients having AMI or unstable angina admitted to ICU from the emergency room of King Khalid Military City Hospital. The time of admission to ICU (which corresponds to the beginning of thrombolytic therapy), the time when cardiac enzymes (CK MB and cTnI) are available, the number of cTnI determinations before obtaining a significant positive result (> 2 ng/mL), and the delay between admission and the first significant positive result of cTnI were evaluated.

**Results:** Sixteen patients had confirmed AMI based on the association of typical chest pain, ECG findings with ST segment elevation, and significant increase of the ratio CK/CK MB > 10 percent. Sixteen patients had unstable angina. Thirteen out of the 16 patients (81.25 percent) with AMI received thrombolytic therapy, which was initiated on the basis of typical clinical history and electrocardiographic features, before the availability of cardiac enzymes. Troponin I was available in only 13 cases. The number of tests performed in these patients was 32. The

first positive result of cTnI was available within a mean time of  $16.66 \pm 20.8$  hours from admission. The number of negative tests performed before obtaining a frank positive result was 9 in 12 patients. The number of positive tests after having obtained the first frank positive cTnI result was 10 in 12 patients. In all cases, cTnI results were concordant with CK MB results.

In the 16 patients having unstable angina, only 11 patients had cTnI serum level. A total of 21 tests were performed. In 9 patients, 14 cTnI tests were  $< 2$  ng/mL. This was correlated with the normal CK/CKMB ratio. In two patients, seven cTnI tests were positive. Both of them had a significant increase of CK/CKMB ratio and ECG features of myocardial ischemia and were referred for urgent coronary angiography.

**Conclusion:** cTnI levels are not helpful in the initial management of patients with AMI, so thrombolytic therapy should be instituted before the availability of cTnI results. However, cTnI results are concordant with CKMB in retrospective confirmation of the diagnosis of AMI few hours after onset.

#### **P-47** Issues in Recruiting Mothers and Children for a Family-Based Weight Loss Program

*Vicki Bovee, Nutrition Education and Research Program, Suzanne E. Perumean-Chaney, Kathy Peele, Sachiko T. St. Jeor*

The Health Opportunities for Preschool Children to Optimize Their Cardiovascular Health (HOPSCOTCH) study was faced with the task of recruiting 50 overweight mothers with an overweight preschool child. Recruitment began in June 2000 with a focus on pediatricians and daycare providers. In October, several issues became apparent. Overweight mothers were easily accessible (body mass index [BMI] 25 to 35); yet recruitment was failing because mothers did not perceive their children as overweight. Thus, a recruiter was hired to assist in the effort. The recruitment methods included advertisements in newspapers and on television and radio; fliers; letters; phone contacts; personal contacts; and e-mail. Of these recruitment sources, the top three successful strategies in terms of eligible participants were newspaper ads (53 percent), television spots (14 percent), and word of mouth (friends, 13 percent). Based on the recruiter's observations, the ability to know and understand the target population was extremely important in the success of the recruitment, which ended in April 2001. In terms of costs (recruiter's salary, advertisement, and supplies), recruitment exceeded \$14,500. Recruitment issues can hinder the start of a clinical trial. Thus, the importance of timely, effective recruitment is evident.

#### **P-50** Gender and Ethnic Differences in Obesity and Related Cardiovascular Health Measures in Urban Teenagers: The PATH Program

*Paul Stephen Fardy, Ph.D., Queens College, Ann E. Azzollini, Chris Pitsikoulis, John R. Magel*

**Purpose:** The purpose of the study was to assess gender and ethnic differences in obesity and related cardiovascular health measures in a diverse population of urban teenagers.

**Methods:** Teenage girls (N = 812) and boys (N = 467) from three New York City high schools participated in school-based health promotion. The ethnicity of the sample consisted of 20 percent Asian American, 40 percent African American, 25 percent Hispanic, and 15 percent White. Obesity was estimated by body mass index (BMI) from height and weight and percent body fat (BF) from skinfolds. Cardiovascular health-related measures included systolic (SBp) and diastolic (DBp) blood pressures, estimated maximal oxygen uptake ( $VO_2$ ), habitual physical activity (PA), dietary habits (DH), cholesterol (Ch), and heart health knowledge (HHK).

**Results:** Compared with boys, girls had significantly ( $p < 0.05$ ) greater BF (29.8 versus 16.5 percent) but significantly lower height (63 versus 67 in), and weight (129 versus 143 lb), although BMIs were not different. Girls demonstrated lower SBp (111 versus 117 mmHg), lower DBp (71 versus 72), more favorable DH (43 versus 48 times/week intake of foods high in fat, salt, or sugar), and greater HHK (52 versus 48 percent correct responses to a written test). Boys had more favorable Ch (146 versus 158 mg/dL), greater  $VO_2$  (46 versus 36 mL/ $O_2$ .kg.min), and greater PA (5.7 versus 4.6 times/week of activities  $> 15$  min). Significant ethnic differences were observed in height, weight, BMI, and Ch in girls and in BMI and BF in boys. Ethnic group comparisons revealed that obesity was most prevalent in African American and Hispanic girls and in Hispanic boys.

**Conclusions:** In urban adolescents, estimated obesity appears to be more prevalent in females than in males and is highest in Hispanic and African American girls and in Hispanic boys. Boys demonstrated more favorable cardiovascular risk profiles based on greater physical activity, lower cholesterol, less obesity, and higher  $VO_2$ , even though HHK was lower than in girls.

#### **P-51** Analysis of Prehospital Treatment—Delaying Factors With Early Cardiac Death After Acute Coronary Syndrome in Socioeconomically Differing Populations

*Terri L. Bono, R.N., M.S.N., A.C.N.P., Seton Hall University, Kelly Gangwer*

Treatment delay after an acute coronary event is associated with various prehospital factors, including patient demographics, premorbidities, mode of transportation, and setting characteristics. The authors retrospectively

reviewed the incidence of these factors in cases of early cardiac death after acute myocardial infarction (AMI) in two socioeconomically differing populations. Data were collected from 192 patient files from both a private and public institution and were statistically analyzed for the relative frequency of various treatment-delaying characteristics at the different sites. Acts of self-treatment, physician referrals, daytime presentation, self/family transportation, and premorbidities (hypertension and angina) were significantly more common in the private community patients, while the setting of symptoms, witness to symptoms, marital status, history of diabetes, or previous myocardial infarction did not statistically differ. The results of this study indicate that the incidence of treatment-delaying factors may be population specific. Community education programs to improve prehospital treatment delay inpatients with acute coronary syndrome need modification to address population-specific factors.

**P-52 Weight Loss and Metabolic Improvement With a Mediterranean Diet in Patients With Heart Disease**

Mary M. Flynn, Ph.D., R.D., *The Miriam Hospital Nutrition Center, The Miriam Hospital*

This outpatient study compared an American Heart Association (AHA) diet with a Mediterranean diet (Med) in patients with heart disease and body mass index > 25.0 for 8 weeks of weight loss and metabolic improvement. The AHA diet group was allowed total fat up to 30 percent, primarily polyunsaturated fats (PFA) and excluding food sources of monounsaturated fat (MFA). The Med group had a daily fat goal of at least 35 percent from extra virgin olive oil and excluded food sources of PFA. Baseline lipids were established after 14 days of a saturated fat diet (SFA). Results for the 10 completed (20 enrolled) are as follows:

	AHA (1M/4F)	Med (1M/4F)	p =
<b>Percent of Nutrient (3-day diet diaries)</b>			
Tot. fat (base)	39.7 ± 7.6	40.3 ± 2.2	0.185
Tot. fat (wk 8)	27.5 ± 5.7	45.2 ± 4.0	0.000
PFA/Tot. fat wk 8	26.4 ± 10.6	9.9 ± 1.2	0.009
MFA/Tot. fat wk 8	30.9 ± 4.6	63.2 ± 4.1	0.000
<b>Percent Change from Baseline (SFA diet)</b>			
Total cholesterol	-2.1 ± 18.3	-0.38 ± 13.1	0.870
Triglycerides	+28.7 ± 29.2	-4.1 ± 22.3	0.085
HDL-C	-5.4 ± 9.8	-4.3 ± 5.9	0.835
LDL-C	-0.1 ± 0.4	+6.2 ± 0.24	0.351
Insulin	+4.2 ± 54.1	-31.8 ± 11.6	0.183
Glucose	+1.8 ± 6.0	-12.1 ± 5.0	0.004
Body weight	-1.7 ± 1.4	-3.19 ± 0.8	0.084

Mean + SD

All Med patients had decreases in their fasting insulin (range 18–49 percent) and glucose (6–19 percent). These preliminary data suggest that compared to an AHA diet, a Med has comparable weight loss and may result in better metabolic improvement.

**P-53 Use of Transtheoretical Model Processes Across Exercise Stages of Change of College Students**

Danielle Danese Williams, M.S., *The University of Mississippi*

The USDHHS specifically identifies postsecondary institutions as settings where young adults should be targeted for exercise promotion. The Centers for Disease Control and Prevention reports a decline in total physical activity during college years. One explanation for this decline is the lack of theory-based exercise promotion programs (EPPs) at the college level. The transtheoretical model (TTM) offers a framework to develop EPPs that may increase the adoption and maintenance of exercise behavior by college students; yet the use of the TTM processes by this population is unknown. Therefore, the purpose of this study was to describe the use of the TTM processes in a college student population across the exercise stages of change. Questionnaires were distributed to 708 students resulting in 699 useable questionnaires. Each instrument has established validity and reliability. MANOVA was used to examine differences in the 10 TTM processes across the 5 stages. Post hoc analyses were used to examine differences between stages. The results show significant differences for each process across all levels of stage. Post hoc analysis revealed seven different processes that were significant between adjacent stages. There is a linear increase in all processes across stages except for the environmental reevaluation process. It appears the TTM processes may be useful in promoting the exercise behavior of college students. Future research should examine how stage-matched EPPs can increase exercise adoption and maintenance of college students.

**P-54 Reduction of Cardiovascular Disease in Rural Communities**

Deborah S. King, Pharm.D., *University of Mississippi*

This presentation describes the design and initial progress of a small, rural community pilot project designed to reduce cardiovascular risk factors. This is an enabling intervention, leading the establishment of cardiovascular educational programs targeted to community groups, health care providers, and individuals with specific risk factors.

A baseline risk factor assessment in every eligible community member is being followed by interventions over 12 to 18 months. Efforts include increasing awareness, comprehensive risk factor detection, and improving health care access. Persons with identified risk factors are tracked for optimal management.

The primary outcome variable will be changed in cardiovascular risk factor status from baseline to post-intervention, including control rates for hypertension, dyslipidemia, and diabetes. Secondary measures include treatment rates for hypertension, dyslipidemia, and diabetes, along with body weight assessments, self-reported physical activity measures, and smoking rates.

POSTER SESSIONS

Mississippi has the highest overall cardiovascular mortality rate among the 50 States. While research into causes of regional and racial disparities in mortality is urgently needed, currently available strategies for reducing risk should be used most effectively. Population-based strategies to improve health behaviors are one approach to improving large disparities. This project is intended to form the basis for the development of a statewide strategy for improving cardiovascular risk factor prevention and management and, ultimately, a reduction in morbidity and mortality.

**P-56** **Analysis of the Relationship Between Exercise Capacity and Heart Rate Variability in Trained and Untrained Individuals**

*Phil Tonkins, Jr., M.S., A.T.C., Morgan State University Public Health Program*

**Objectives:** This study examines (1) the relationship between exercise capacity and measures of heart rate variability (HRV) in trained and untrained males and (2) whether different types of sports training affect HRV in a different manner.

**Methods:** Thirty-nine college-aged ( $21.2 \pm 3$  years) male athletes and nonathletes voluntarily participated in this study. Subjects completed a questionnaire describing their training history and then performed a graded maximal exercise test using the Bruce treadmill protocol. Following the test, an ambulatory Holter monitor was placed on the subjects for 24-h to record HRV. The relationship between time to exhaustion (exercise capacity) and measures of HRV was determined using correlation analysis. Additionally, HRV for endurance-trained, anaerobic-trained, or nontrained subjects was compared using a one-way analysis of variance.

**Results:** Significant correlations were observed between time to exhaustion and the mean of the R-R intervals ( $r = 0.507$ ,  $p = 0.001$ ) and standard deviations of R-R intervals during 24-h ( $r = -0.380$ ,  $p = 0.017$ ). Additionally, exercise capacity tended to correlate with the square root of the mean for the sum of squares of differences between adjacent R-R intervals ( $52.9 \pm 23.6$ ,  $r = 0.31$ ,  $p = 0.053$ ) and in the proportion adjacent R-R intervals having differences of 750 milliseconds ( $22.7 \pm 14$ ,  $r = 0.29$ ,  $p = 0.074$ ). No significant differences were observed between types of training or measures of HRV.

**Discussion:** Sports training positively affects selected measures of HRV and may help decrease risk of arrhythmia or sudden death. However, the type of sports training does not appear to influence this potential health benefit.

**P-57** **Eating To Live in the 21st Century**

*Velonda Thompson, Ph.D., Be-Fit, Inc.*

Studies show that more than half the adults in the United States are overweight and that 11 percent of the 6- to 19-year-olds are considered overweight or obese. Across the country, health professionals and researchers are struggling with the question of how to reduce obesity. Because

we recognize and understand that a healthy diet is an important contributing factor to disease prevention, we realize that a substantial change in America's eating habits is needed. Eating To Live in the 21st Century is an effort to provide health practitioners with a fresh approach to promoting healthy eating. This presentation will feature two dietary programs designed to help people improve their dietary habits and focus on maintaining a healthy weight.

**P-58** **New Secondary Prevention Strategies: Effectiveness of Intensive Outpatient Interventions That Complement the American Heart Association's Get With the Guidelines Program**

*Liana S. Lianov, California Heart Disease and Stroke Program, California Department of Health Services, Nan Pheatt, M.P.H.*

**Purpose:** The American Heart Association's (AHA's) Get With the Guidelines (GWTG) program encourages hospitals to develop protocols that maximize the likelihood of coronary artery disease (CAD) patients being discharged on medications and counseling consistent with the AHA/American College of Cardiology guidelines. Compliance is high right after discharge when this protocol is initiated in the hospital, but rates of compliance over the long term in the community setting are unclear. The purpose of this study is to determine whether intensive outpatient support will benefit compliance and patient outcomes. If successful, future projects will test and apply this intervention in cardiology and primary care settings that follow patients long term.

**Methods:** This nonrandomized, prospective intervention study uses a convenience sample of patients with confirmed CAD at Loma Linda University Medical Center. All patients undergo the GWTG protocol before hospital discharge. Patients in the intervention group are followed in the intensive clinic. Patients in the control group receive the usual care. At 12-month post-discharge, the groups are compared with respect to adherence to smoking cessation; exercise; body mass index (BMI); use of recommended drugs; and lipid, blood pressure, and hemoglobin A1C levels.

**Results/Conclusions:** In April 2002, preliminary compliance and patient outcome data for the first 10 months will be presented.

**P-59** **An Analysis of Coronary Heart Disease Risk in a Cardiology Population**

*Maria Cannito, Pfizer, Inc.*

**Background:** Cardiovascular disease is the leading cause of death in American adults. The high prevalence of coronary heart disease (CHD) can be attributed to the levels of uncontrolled risk factors for this disease.

**Objective:** This analysis assesses the CHD 10-year risk of selected hypertensive patients in relation to the standard risk based on the Framingham Heart Study.

**P-59.** Hypertensive population treated with usual care in a cardiology practice.

CHD Risk Category	Age (%)	Diabetes (%)	HDL < 35 (%)	Smoker (%)	TC > 240 (%)
Below standard	25	1.4	4	1.4	16
1–2 x standard	43	30	32	36	30
2–3 x standard	17	24	25	32	30
> 3 x standard	16	45	39	30	24

**Methods:** The objectives of the review were to determine CHD risk according to age, diabetes, total cholesterol, smoking, and JNC VI category. A randomized, retrospective chart review was completed for 353 hypertensive patients, utilizing the CHD Risk Calculator.<sup>®</sup>

**Results:** In a hypertensive population (mean age 67.9 ± 12.01 years) treated with usual care in a cardiology practice, risk categories according to the Framingham Heart Study were defined as shown above.

**Conclusion:** Analysis of CHD risk in a cardiology population demonstrates that therapeutic efforts still leave a high percentage of patients under treated and at increased risk for a CHD event. This risk analysis identifies high-risk subgroups for aggressive management per current guidelines.

**P-60**

**Faith Community Site Intervention Trials: Socioeconomic Status as a Predictor of Cardiovascular Disease Risk Factor Profiles**

*Gretchen Fierle, Research Center for Stroke and Heart Disease*

**Background:** Risk factors for heart disease and stroke are more prevalent among populations of lower socioeconomic status (LSES) than higher socioeconomic status (HSES).

**Objective:** The objective of this study is to determine whether faith community sites located in areas of LSES experience higher rates of cardiovascular disease (CVD) risk factors than faith community sites of HSES.

**Results:** Six faith sites, three of LSES and three of HSES, participated by completing a standardized health questionnaire addressing the following CVD risk factors: smoking, overweight, diabetes, hypertension, and high cholesterol. A total of 3,345 questionnaires were distributed, 2,095 to sites of HSES and 1,250 to sites of LSES. The cumulative rate of return was 46 percent, with return rates of 60 percent and 44 percent for sites of LSES and HSES, respectively. Results revealed a higher prevalence of risk factors among sites of LSES than among those of HSES. The LSES sites reported higher rates in every risk factor category; however, the level of disparity differed. There were larger gaps between the LSES sites and the HSES sites for diabetes and hypertension, with a difference of 9.8 percent and 12.3 percent, respectively. Smaller gaps between sites of LSES and HSES were observed for smoking and overweight, with a difference of 4.5 percent

and 3.4 percent, respectively. There was little variation (1.6 percent) between the two site groups regarding high cholesterol.

**Conclusion:** Faith community sites of LSES have a higher rate of CVD risk factors than faith community sites of HSES. The level of disparity differs depending upon the specific risk factor. Community intervention trials randomized by the socioeconomic status of the faith site location can be predicted to reflect the risk factor profiles of the congregation members.

**P-61**

**Intervention Plan To Increase Physical Activity Levels in the Inner City**

*Michael J. Welch, Ph.D., Chronic Disease, Richmond City Department of Public Health*

The health benefits of physical activity are well documented. Inner city environments construct several barriers to physical activity participation. Two prominent barriers are convenient facilities and safe environments. The Richmond City Department of Public Health initiated ROCK! Richmond in 1997 to increase the physical activity levels of inner city residents. Our targeted population is at a higher risk of sedentary lifestyle: women, lower socioeconomic levels, and members of a minority ethnicity. Physical fitness instructors conduct free classes in churches, community centers, elderly housing complexes, schools, and worksites. After 4 years, nearly 600 participants attend on a weekly basis at more than 30 locations. From self-reported surveys, only 34 percent of the present participants were physically active three times per week before ROCK! Richmond. Currently, 86 percent of participants are active three times per week. A weight loss of at least 10 pounds has been reported by 24 percent, and 30 percent have reported a reduction in blood pressure. With regards to their general health and well-being, 89 percent of the participants reported an improvement in overall health since participating in the program.

ROCK! Richmond serves as a model for public health initiatives that desire to increase the physical activity levels for a high-risk population, a major goal of Healthy People 2010. Strategies for implementation will also be discussed, with what worked and what did not.

### Linking the Library and the Farm With Nutrition Education: An Innovative Delivery Method for Delivering the Five a Day Message to Children

Luanne J. Hughes, M.S., R.D., Rutgers Cooperative Extension

Innovative nutrition education programs are required to effectively and efficiently deliver nutrition education messages about increasing fruit and vegetable consumption to families with children.

A new program in New Jersey, called From Our Farms, does just that. From Our Farms is an innovative program designed to help New Jersey children and their families learn about the importance of good nutrition, the value of local agriculture, and the role that farms play in enriching our communities and the environment.

This initiative is a collaboration between Cooperative Extension (Family & Consumer Sciences, Agriculture and Resource Management, and 4-H Youth Development), public libraries, farmers/growers, master gardeners, the local board of agriculture, county government, the local dietetic association, and the local industry.

Through storybooks, activities, electronic multimedia, farm and market field trips, and original lessons, From Our Farms teaches an increasingly suburban population (many of whom have relocated from nearby urban Philadelphia) about the appeal of the farm and its food. This results in two important, key facts:

1. Public appeal and public support, which result in funding to develop and maintain a consumer education program
2. Consumer interest and good participation in programs, which result in outreach that produces significant, meaningful impacts

### Dietary Fat Assessment: Identification of Food Frequency Questionnaires With Limited Measurement Burden

Nalini N. Jairath, R.N., Ph.D., School of Nursing, University of Maryland, Tracey Reinecke-Kashima, Stephanie Glenn, Diane Vail Skojec

**Purpose:** Measurement burden from the perspective of the client and the clinician/researcher is an important consideration when dietary fat intake is determined as a prelude to or concurrent with interventions to reduce dietary fat intake. This comparative analysis identified a subset of brief food frequency questionnaires to assess dietary fat intake (dietary fat FFQs), which have limited measurement burden.

**Methods:** Dietary fat FFQs suitable for use with North American populations were identified through extensive literature review. A subset with acceptable psychometric properties and limited measurement burden was identified. Measurement burden was evaluated in terms of the (a) administration requirements (including personnel, FFQ length, and administration time), (b) scoring approaches,

(c) appropriateness for use with diverse populations, and (d) potential for use in client self-monitoring and incorporation into interventions to reduce dietary fat intake.

**Results:** Eight dietary fat FFQs with acceptable psychometric properties and limited measurement burden were identified.

**Conclusions:** Measurement burden may be reduced through careful selection of dietary fat FFQs. Additional selection considerations include instrument sensitivity and specificity, ability to assess intake of foods specific to particular cultural groups, ability to accurately estimate portion sizes, and sensitivity to time-dependent changes in dietary fat intake.

### Case Report: Rapid Assessment and Management of an Acute Coronary Syndrome

Terri L. Bono, R.N., M.S.N., A.C.N.P., Seton Hall University

Practitioners in both acute care and primary care settings will find that identifying specific strategies to improve assessment skills leading to rapid diagnosis for chest pain is essential. Advanced practitioners as effective care coordinators and facilitators can play an active role in ensuring positive results when managing an acute coronary syndrome (ACS). This specific case report focuses on special considerations with detailed chest pain history; physical, differential diagnosis; and laboratory finding. Rationales were provided by recent research and with a focus to rapidly meet the needs of an ACS patient. Special focus on evaluating patients on whether they would benefit from thrombolytics and/or other adjunct pharmacological therapies (such as, GP IIB,IIIA inhibitors, platelet aggregation inhibition, and low-molecular-weight heparin) as well as a variety of mechanical/interventional devices (angioplasty, stent) used to improve coronary artery blood flow and prevent the worsening of myocardial ischemia. Combined needs in the direction of patients' educational needs, such as on dietary modification, high-risk behavior reduction (smoking, sedentary lifestyle), and lipid management.

### Preventing Cardiovascular Disease in Women: A Community-Based Project

Mary J. Boylan, M.D., Thoracic and Cardiovascular Surgery, Julie Knuths, M.S.N., R.N., Colleen M. Renier, Jane L. Erjavec

**Background:** Cardiovascular disease (CVD) remains the number one cause of death for women, often resulting in the sudden death of women without prior diagnosis. Northeast Minnesota has the highest prevalence of CVD in the State, yet no organized attempt has ever been made to offer primary prevention health screenings and community education to regional women.

**Methods:** This community-based, 1-year, group-randomized, intervention-control study was designed to test a primary prevention model for reducing cardiovascular risk factors in women. Three hundred seventy-one women, 20–50 years of age (mean = 42.0) and without previously

diagnosed CVD, were enrolled. Twelve clinics (five college-based), three hospitals, parish/temple nurses, and two large local employers recruited participants. Participants were screened for cardiovascular risk factors at baseline and 1 year. One hundred sixty-eight intervention women participated in educational sessions (stress management, exercise, diet, and smoking), with progress monitored via telephone throughout the study.

**Results:** At baseline, 50.7 percent of participants were found to have total cholesterol > 200 mg/dL, 14.0 percent had blood pressure > 140/90 mmHg, 66.8 percent had body mass index < 18.5 or > 24.9 kg/m<sup>2</sup>, 54.6 percent exercised < 3 days/week, and 82.8 percent reported stress/anger 1+ days/week. Positive behavioral changes in diet, exercise, and stress were seen in the intervention group at 6 months and continued through 1 year ( $p < 0.05$ ). In addition, 87.6 percent of women with abnormal baseline glucose, cholesterol, and blood pressure visited their physician, as advised ( $p < 0.05$ ), resulting in significant improvement in blood pressure ( $p < 0.01$ ) and cholesterol ( $p < 0.001$ ).

**Conclusions:** Comprehensive, community-based screening and review decrease women's risk for CVD, with education and one-on-one followup significantly changing behavior.

#### **P-66** Assessment of the Prevalence of Cardiovascular Disease and Associated Risk Factors in South Carolina Using Behavioral Risk Factor Surveillance System Data

Mohammad I. Ullah, M.D., M.P.H., St. Barnabas Hospital, New York

**Background:** Cardiovascular disease, including stroke and myocardial infarction (MI), is a leading cause of death in the United States. The purpose of this study was to assess the prevalence of stroke and MI and the associated risk factors in South Carolina.

**Methods:** Using the cardiovascular module of the Behavioral Risk Factor Surveillance System (BRFSS, 1996) data for the State of South Carolina, descriptive analyses were performed with the Statistical Analysis System (SAS). The relationship of age, sex, obesity, and diabetes were assessed as the risk factors for stroke and MI.

**Results:** In the past, 2.2 percent of the population had a history of stroke. These people were 1.6 times more likely to be female (95 percent CI = 1.595–1.650), 1.5 times more likely to be overweight, and 16 times more likely to be diabetic (95 percent CI 15.847–16.269). In the past, 5 percent of the population had a history of MI. People having previous MI were more likely to be female (odds ratio = 1.021, 95 percent CI = 1.010–1.032), 1.7 times more likely to be overweight, and 3.7 times more likely to be diabetic (95 percent CI 3.68–3.79). The people who had a history of stroke were 7.8 times more likely to have had a history of suffering from MI (95 percent CI = 7.677–7.935). The majority of people having stroke (68.55 percent) or MI (78.35 percent) were in the 65+ age group.

**Conclusion:** From the BRFSS data, we found that 1 in 45 had a history of stroke and 1 in 20 had a history of MI in the State of South Carolina. Results indicate that people having past history of stroke or MI are much more likely to be elderly (65+), overweight, female, and diabetic.

#### **P-67** Population Strategies for Hypertension: Japanese Male Workers Study

Machi Suka, St. Marianna University School of Medicine

**Purpose:** The purpose of this research was to develop effective preventive strategies for hypertension based on the evaluation of the population attributable risk percentage (PAR percent).

**Methods:** In a longitudinal study of Japanese male workers aged 35, 40, 45, and 50, at baseline ( $n = 1,058, 2,201, 2,739$  and  $1,191$ , respectively), the relationships between seven variables (family history of hypertension, obesity, salt intake, vegetable intake, alcohol drinking, exercise, and sleep) and the 5-year incidence of hypertension were analyzed by using multiple logistic regression models.

**Results:** PAR percent showed obvious differences in contribution of the seven variables to the incidence of hypertension among the four age groups. PAR percent of obesity in the 35-, 40-, 45-, and 50-year-old groups were 35 percent, 20 percent, 13 percent, and 21 percent, respectively (decreasing with age), whereas those of alcohol drinking were 25 percent, 20 percent, 37 percent, and 53 percent, respectively (increasing with age). Insufficient exercise showed about 20 percent of contribution in the 40- and 45-year-old groups. Dietary habits showed modest contribution in every age group.

**Conclusion:** In terms of population strategies for hypertension, health professionals should change their target risk factors by age group. Weight control is recommended for the younger, whereas alcohol moderation is recommended for the older. Exercise may be recommended especially for persons under age 50.

#### **P-68** HEART: Helping Educators Attack Cardiovascular Disease Risk Factors Together

Shari Wiley, C.C.R.N., M.S.N., C.F.N.P., St. Mary's Hospital

St. Mary's Hospital has partnered with the West Virginia Department of Education, West Virginia Bureau for Public Health, and the West Virginia Chapter of the American Heart Association to implement "HEART" (Helping Educators Attack Cardiovascular Disease Risk Factors Together). HEART will target 45 public elementary schools in Cabell, Wayne, and Lincoln Counties beginning in September 2001. We will be educating approximately 8,000 children and their parents on the prevention of cardiovascular disease during the 3 years of our program.

Children will be screened to detect cardiovascular risks by measuring fingerstick cholesterol, blood pressure, height, weight, and body mass index. Familial risks will be determined by a family health survey. Strategies to decrease

cardiovascular risk factors will include curriculum changes to increase the knowledge of cardiovascular disease and risk factors and the implementation of the Feelin' Good Mileage Club to promote increased physical activity during recess time; physical education classes will be encouraged to increase the time spent on exercise and aerobic activity by students, and lunch menus will be changed to promote healthy choices. The program will be expanded beyond the classroom by the inclusion of families in the following risk reduction activities: Low Fat Cooking School; smoking cessation classes; and the Families in Training Walking Program, which promotes physical activity for the entire family.

Students who present with cardiovascular risk factors will be referred to the pediatric Cardiac Clinic at Marshall University for followup. Over the 3-year period, HEART will monitor and evaluate the effects of changes in physical activity and diet on risk factor reduction.

### **P-69** **Multifactor Risk Reduction in Low Income Patients: Opportunities and Challenges in Implementing a Case Management Model**

*Kathy A. Berra, Stanford University School of Medicine, William L. Haskell, Annette Clark, Linda H. Klieman*

**Purpose:** The Heart Disease on the Mend (HDOM) Project was undertaken to evaluate the effectiveness of a case-managed multifactor risk reduction program (MRRP) in high-risk, low-income patients with either no or limited health insurance.

**Methods:** High-risk patients eligible for medical care from not-for-profit hospitals in Santa Clara County are identified and randomized to MRRP or usual care. MRRP is provided by a specially trained nurse and dietitian. Risk factor and clinical evaluations are performed at baseline, 6 and 12 months.

**Results:** Data from the first 50 patients randomized demonstrate a substantial need for assistance to achieve chronic risk management and a number of significant barriers. Patients are at high risk for clinical events based on existing disease and risk factors: hypercholesterolemia = 85 percent, hypertension = 90 percent, diabetes = 70, cigarette smoking = 15 percent, BMI = 34.9 percent, poor nutrition = 30 percent, and inadequate physical activity = 30 percent. Barriers include diverse languages spoken (only 26 percent speak English), low literacy, lack of access to basic medical care services and medications, limited understanding regarding the care of chronic disease, long-term health a low priority, and lack of social support for sustaining long-term lifestyle changes. However, once patients understand what actions need to be taken and are provided readily accessible support, clinically important changes in medical management and lifestyle are achieved.

**Conclusions:** The case management of risk factors in high-risk, low-income patients can be of significant benefit; however, strategies need to be implemented to deal with numerous barriers.

### **P-70** **The Use of Self-Regulation Skills, Exercise Self-Efficacy and Exercise Outcome-Expectancy Values of Employed Women**

*Michelle Renee Umstattd, M.D., Center for Health Promotion, The University of Mississippi, Jeffrey S. Hallam*

Utilizing stage-matched interventions to enhance the adoption and maintenance of exercise behavior is receiving considerable attention in the exercise behavior literature. The theoretical variables that influence exercise behavior at different stages of exercise are not well understood. Therefore, the purpose of this study was to examine the level of exercise self-efficacy, exercise self-regulation, and exercise outcome-expectancy values at each stage of exercise behavior, as defined by the trans-theoretical model and self-reported exercise behavior. An exercise stage-of-change instrument was sent to all employees (N = 2,200) of two worksites. Employees who returned the stage-of-change instrument were asked to complete a questionnaire that measured exercise self-efficacy, exercise self-regulation, outcome-expectancy value, stages-of-exercise, current exercise behavior, and demographic information. All instruments had established reliability and validity. The results did not show any significant differences ( $p > 0.05$ ) between selected stage comparisons on the use of the social cognitive theory variables. Comparisons between regular exercisers and non-regular exercisers on the three social cognitive theory variables were statistically significant ( $p = 0.0001$ ). Regular exercisers had significantly higher levels of self-efficacy, self-regulation, and outcome-expectancy value ( $p = 0.0001$ ). The exercise stage-of-change data were compared with exercise behavior data, and 17 percent of the subjects' behavior did not match their reported stage. Since exercise stage determination is based on current exercise behavior, these data indicated that the exercise stage-of-change instrument may not be valid. Future research should examine these variables across the continuum of exercise. Furthermore, the validity of the exercise stage-of-change instrument should be examined.

### **P-71** **Exercise Stages of Change Do Not Accurately Reflect Exercise Behavior in Employed Adults**

*Michelle Renee Umstattd, M.D., The University of Mississippi, Danielle Danese Williams, M.S., Jeffrey S. Hallam*

Many researchers use the exercise stages of change to examine the effectiveness of interventions designed to increase exercise behavior and to categorize participants for stage-matched interventions. The popularity of using the exercise stages of change as a dependent variable by both researchers and practitioners is continuing to grow. Given that the exercise stages of change are defined by the intention to exercise and current exercise behavior, participants' reported exercise stage of change should reflect the participants' current exercise behavior. A review of the exercise stage-of-change literature reveals that researchers consistently collapse stages based on

exercise behavior. A secondary analysis of two studies, conducted by the researchers, found discrepancies in the participants' reported exercise behavior and their exercise stages of change. These discrepancies may influence the conclusions and the categorization of participants for stage-matched intervention. Therefore, the purpose of this study was to examine the accuracy of the exercise stages of change to reflect current exercise behavior as measured by a 7-day recall instrument. Data were collected from 551 employed adults. The data show that 18 percent of the subjects reported exercise behavior did not accurately reflect their current exercise behavior. These results are consistent with other data showing that between 20 percent and 46 percent of subjects' reported stage of change does not accurately reflect current exercise behavior. These results have significant implications for the exercise promotion specialists and exercise behavior researchers.

### **P-72** Evaluation of Antihypertensive Effectiveness in Clinical Practice

*Sunny Anne Linnebur, Department of Pharmacy Practice, University of Colorado Health Sciences Center, Timothy J. Hartman*

**Purpose:** Antihypertensive effectiveness in clinical practice may differ from clinical trial results. This study compared blood pressure lowering after the initiation or addition of antihypertensive agents in clinical practice.

**Methods:** A medical record review of 1,117 patients with hypertension (ICD-9 code 401.9) identified 300 patients from two primary care clinics. Inclusion criteria were initiation of a new antihypertensive within the past 24 months and available pretreatment and posttreatment blood pressures.

**Results:** Thiazides, beta-blockers (BBs), and ACE inhibitors were initiated more frequently than calcium-antagonists, angiotensin-receptor blockers, and alpha-blockers. Hydrochlorothiazide, atenolol, and lisinopril were utilized the most. Mean decreases (mmHg) in SBP/DBPs from baseline with hydrochlorothiazide 12.5, 25, and 50 mg/day were 24.4/13.4 ( $p < 0.05$ ), 20.8/7.4 ( $p < 0.05$ ), and 11.2/3.8 ( $p = \text{NS}$ ), respectively. With atenolol 25, 50, and 100 mg/day, mean decreases were 14.3/9.9 ( $p < 0.05$ ), 18.7/14.5 ( $p < 0.05$ ), and 19.5/13 ( $p < 0.05/p = \text{NS}$ ), respectively. Mean decreases with lisinopril 5, 10, 20, and 40 mg/day were 9.6/8.3 ( $p < 0.05$ ), 16.1/12.4 ( $p < 0.05$ ), 11.3/6.2 ( $p < 0.05$ ), and 9.3/6.8 ( $p = \text{NS}/p < 0.05$ ), respectively. There were no differences between individual drug doses. At low doses, hydrochlorothiazide 12.5 mg/daily decreased DBP from baseline more than lisinopril 10 mg/daily ( $p = 0.037$ ).

**Conclusion:** Hydrochlorothiazide, lisinopril, and atenolol were effective at lowering SBP and DBP. In our population, low-dose hydrochlorothiazide appears to be more effective than low-dose lisinopril at lowering DBP. These data indicate JNC-VI-defined, first-line agents (diuretics

and BBs) are highly effective in clinical practice, consistent with what is reported in clinical trials.

### **P-74** Increased Prevalence of Cardiovascular Risk Factors in a Rural Appalachian Area of Eastern Kentucky Is Associated With Lower Educational and Income Levels: The Coronary Valley Project

*Vivian M. Abascal, M.D., University of Kentucky, Judy Zielke, R.N., M.S.N., Jay W. Mason, M.D., Thomas F. Whayne, Jr., M.D., F.A.C.C.*

**Background:** Coronary heart disease (CHD) mortality varies geographically, the highest occurring along the Ohio and Mississippi river valleys, including the Appalachian region of eastern Kentucky. This area is referred to as the Coronary Valley (CV). The prevalence of cardiovascular risk factors (RF) and its association with educational and income levels in this rural area are not known.

**Methods:** The CV Project is being conducted in a rural Appalachian area of eastern Kentucky to determine the prevalence of traditional RF (phase I) and to implement a community-based risk reduction program (phase II). Phase I consisted of a survey including demographic, educational, and income information. Medical, smoking, and family history were recorded. Blood pressure (BP), random finger-stick cholesterol, and capillary blood glucose level (BS) were also obtained. Clustering of RF was assessed using Adult Treatment Panel (ATP) III Guidelines, and its prevalence was compared with data from the National Health and Nutrition Examination Survey III (NHANES III) and the Centers for Disease Control and Prevention (CDC).

**Results:** From April 1999 until July 2001, 1,376 participants, mean age  $45 \pm 16$  years, 94 percent Caucasian, 64 percent female, were screened. The prevalence of RF was increased when compared to national statistics: BP  $\geq 140/90$  mmHg 32 percent versus 20 percent, current smoking 30 percent versus 22 percent, physical inactivity 46 percent versus 27 percent, and overweight (BMI  $\geq 25$  kg/m<sup>2</sup>) 65 percent versus 55 percent (all  $p < 0.0001$ ), while the prevalence of cholesterol 200 mg/dL was lower, 39 percent versus 51 percent ( $p < 0.0001$ ). However, 12 percent of participants had cholesterol  $\geq 240$  mg/dL. The prevalence of BS  $\geq 140$  mg/dL was similar, 15 percent versus 14 percent ( $p = \text{ns}$ ) when compared to national statistics. Forty-six percent of participants reported a family history of CHD, and 23 percent had no health insurance. Using ATP III Guidelines, 43 percent of participants had no RF, 57 percent had at least 1 RF, and 25 percent had  $\geq 2$  RF. Compared to participants with  $\leq 1$  RF, those with  $\geq 2$  RF had lower educational level ( $<$  high school diploma) (26 percent versus 49 percent,  $p < 0.001$ ) and lower annual income ( $\leq$  \$30,000) (54 percent versus 79 percent,  $p < 0.007$ ).

**Conclusion:** The prevalence of hypertension, smoking, overweight, and physical inactivity is higher in eastern

Kentucky when compared to national statistics, while that of cholesterol was lower. However, a proportion of participants still had high cholesterol per ATP III Guidelines. The clustering of RF was associated with lower educational and income levels. Phase II Coronary Valley is in progress as a community-based effort to decrease cardiovascular risk in this Appalachian region of eastern Kentucky.

### **P-75** Improving LDL Goal Attainment Through Provider Education in a Health Maintenance Organization

*Amber Rochelle Polk, Pharm.D., University of Maryland*

The Lipid Treatment Assessment Project (L-TAP) conducted a cross-sectional analysis of adult patients with dyslipidemias receiving lipid-lowering therapy and found that large proportions of these patients were not achieving National Cholesterol Education Program (NCEP) low-density lipoprotein (LDL) target levels. This study will determine the impact of an educational program on LDL goal attainment by NCEP Adult Treatment Panel (ATP) III risk categories. The educational intervention will be provided by clinical pharmacists and will consist of lectures and one-on-one sessions with each physician to discuss NCEP ATP III Guidelines and to demonstrate the utility of a statin selection tool to achieve goal LDL levels. The intervention will occur in a health maintenance organization (HMO). The impact of this educational program will be determined by comparing the percentage of patients at goal LDL prior to and after the educational programs. Patients were identified from the HMO's pharmacy claims database as having at least one prescription for an antilipemic agent, from October 1, 2000, through June 30, 2001. A random sample of patients will have their charts reviewed to collect baseline data (e.g., demographics, risk factors for coronary artery disease, serum lipid levels, and drug therapy). The educational program will occur, and repeat data will be collected 6 months after the educational program. Results will be available for presentation at the meeting. This study should determine whether a physician-directed educational program improves LDL goal attainment in patients already prescribed antilipemic agents.

### **P-76** Triage Decisions by Emergency Department Nurses

*Cynthia Arslanian-Engoren, Ph.D., R.N., University of Michigan*

**Background:** Although empirical evidence exists that indicate women who suffer a myocardial infarction (MI) are less likely than men to be diagnosed based on their presenting symptoms, to receive aggressive treatment, and to survive an acute cardiac event, the majority of studies conducted to date are retrospective chart reviews examining the triage decisionmaking practices of physicians.

**Purpose:** The purpose of this study is to ascertain if triage decisions performed by registered nurses are dif-

ferent when presented with similar risk factors and patient cues for MI, but different patient gender.

**Methods:** A nonexperimental, descriptive study will be conducted using computer-generated vignettes to quantify the decisionmaking processes of 3,000 registered nurses who triage men and women for complaints suggestive of coronary heart disease. It is posited that if nurses are better able to interpret and associate the cues presented by women with cardiac disease, rather than ascribing them to neuromuscular, psychological, or gastroenterological causes, they would be better able to (1) identify the presence of an acute cardiac event and (2) more quickly and aggressively initiate intervention strategies that could reduce morbidity and mortality.

**Data Analysis:** Data analysis will include descriptive, bivariate, and multivariate analyses and is expected to be completed by December 2001.

### **P-77** Rasmussen Center for Cardiovascular Disease Prevention

*Jay N. Cohn, M.D., Cardiovascular Division, University of Minnesota Medical School, Lynn G. Hoke, R.N., F.N.P., Wayne B. Whitwam, M.D., University of Minnesota Medical School, Paul A. Sommers, Ph.D., R. Roessler, Anne Taylor*

The Rasmussen Center for Cardiovascular Disease Prevention was opened in October 2000 to screen healthy (asymptomatic) individuals in the Minneapolis-St. Paul, MN, area. A comprehensive array of noninvasive tests were administered to detect the earliest markers of vascular and cardiac disease. In addition, modifiable risk factors that could serve to steer interventions in those with markers for disease were measured. More than 250 women and men have been screened to date. Fifty-seven percent have been found with vascular disease; 21 percent with cardiac abnormalities; 68 percent with documented risk markers; and 84 percent with moderate-to-high likelihood of premature cardiovascular disease.

The screening procedure consists of three phases: (1) risk category assignment, (2) early disease assessment, and (3) modifiable disease contributor assessment. Screening elements include health risk appraisal, personal/family history, blood sampling for markers of cardiovascular disease, urine test for early evidence of blood vessel abnormalities, stress blood pressure response test, lung function analysis, photo of arteries in the eye, vascular compliance, ultrasound measurement of the left ventricle, ECG, and a preventive physical examination. Tests are administered by a nurse-practitioner, assisted by a medical assistant. The results are reviewed with a staff cardiologist, and a summary report of findings and recommendations is developed for each individual screened. Copies of the report are provided to those authorized by the patient, e.g., typically the patient's primary care provider.

A database has been developed and contains complete information on each individual screened. Statistical applications focus on traditional test development considera-

tions and include standard reliability and validity measures. Insurance coverage has been made available by area payors but varies considerably. The early data suggest that the type of screening performed by the Rasmussen Center could greatly reduce the cost of health care if early diagnosis can be linked to effective preventive therapy.

#### **P-78** Mississippi MCIC-AHA Capitol Day 2001

*Deborah S. King, Pharm.D., University of Mississippi Medical Center*

Mississippi has the highest overall cardiovascular mortality rates among the 50 States. Even more alarming are the data for trends showing this disparity in disease outcome worsening. For several risk factors, Mississippians have among the highest prevalence rates nationwide. To increase legislator awareness, the Mississippi Chronic Illness Coalition (MCIC) and the American Heart Association (AHA) partnered to sponsor Capitol Day 2001.

Events included:

- Health screenings and risk factor education: obesity, blood pressure, blood sugar/cholesterol, bone density, and physical activity
- Cardiopulmonary resuscitation (CPR) training by the youngest trainers nationwide
- Launching "Know Your Numbers," a statewide educational campaign
- Youth advocates delivering petitions supporting CPR instruction in schools
- Conferences supporting legislation to create a State cardiovascular task force
- Delivering resolutions calling for maintaining health care trust fund integrity and use of tobacco settlement funds only for health initiatives

Legislators, like many adults, are often unaware of the risks of chronic diseases, such as hypertension, diabetes, obesity, and dyslipidemia. Increasing legislator awareness is the first step toward gaining support for effective policy and program changes. Educational campaigns with strong organizational support and partnerships can increase legislator awareness and consciousness. Capitol Day 2001 was extremely successful, with avid legislative participation and full media coverage and publicity.

#### **P-79** A School-Based Program To Heighten Adolescent Obesity Awareness Among Medicine-Pediatric Residents

*Marion R. Wofford, M.D., M.P.H., Division of Hypertension, University of Mississippi Medical Center*

The incidence of obesity has become an epidemic among adolescents. Training in residency programs on adolescent obesity is essential to heighten awareness among future health care providers. Age-specific educational programs on cardiovascular disease (CVD) risks and prevention may impact the occurrence of adolescent obesity.

#### **Objectives:**

- Heighten awareness among medicine-pediatric residents about the epidemic of obesity in adolescents.
- Provide a training site for residents in a community-based setting.
- Promote partnerships between future health care providers and other partners (including local education systems) in the Morton Have-a-Heart Project.

**Methods:** Medicine-pediatric residents from the University of Mississippi Medical Center will conduct a survey on the awareness of health risks associated with overweight and obesity, provide education on the lifestyle changes that impact adolescent obesity, and perform CVD risk assessment among students aged 12–18 in a small but ethnically diverse community in Morton, MS.

#### **Outcomes:**

- Residents will receive training on risk assessment in adolescents.
- Residents will screen for CVD risk among students.
- Adolescents will be more aware of the heart-healthy lifestyle.

**Conclusion:** The Morton Have-a-Heart Adolescent Obesity Project will create training opportunities for medicine-pediatric residents, educate adolescents, and foster non-traditional partnerships between a residency training program and local school systems.

#### **P-80** Assessment of Blood Pressure, Blood Glucose, and Blood Cholesterol, and Body Mass Index Awareness in a Rural Mississippi High School

*T. Kristopher Harrell, School of Pharmacy, University of Mississippi, Deborah S. King, Marion R. Wofford, M.D., M.P.H., Daniel W. Jones*

Mississippi leads the Nation in the number of deaths associated with cardiovascular disease. Alarming, the prevalence rates of cardiovascular disease risk factors have increased, and public awareness of these risk factors has declined. Since the onset of many risk factors is at an early age, it is important to increase the awareness of risk factors among adolescents. This poster presentation will discuss results from a cardiovascular risk factor awareness assessment in students attending a rural high school in Morton, MS.

A "Do You Know Your Numbers" questionnaire was developed and administered to all Morton High School students agreeing to participate. Parental consent was also obtained. The questionnaire consisted of five multiple-choice questions regarding the normal values for blood pressure, glucose, cholesterol, and body mass index parameters. The main outcome variables were awareness rates for each of the risk factors.

A total of 246 students completed the questionnaire. Approximately 55 percent were female, 55 percent were Caucasian, 37 percent were African American, and 3 percent were Hispanic. The mean age of students was 15.7

years. Awareness rates were as follows: blood pressure 49 percent, blood glucose 29 percent, blood cholesterol 25 percent, and body mass index 8 percent. Fewer than 1 percent of students answered all questions correctly, and more than 40 percent could not correctly identify normal values for any risk factor.

To reach Healthy People 2010 objectives, increasing health awareness among high school students is imperative. As a result of these findings, educational programs have been implemented in conjunction with the Morton Have-a-Heart Project at the high school and community levels to increase awareness.

### **P-82** Advanced Lipid Measures in Family Practice: Clinical Outcomes and Cost-Effectiveness

*Maureen R. Courtney, University of Texas at Arlington, Amy Griffith, Amy Andrew, Joy Gibbs*

**Purpose:** This study was a clinical investigation to describe patient profiles of advanced lipids (using LipoMed) and emerging cardiovascular disease (CVD) risk factors (hs-CRP, Lp[a], and homocysteine) in a family practice population. This study, focused on primary prevention patients, evaluated the importance of advanced lipid testing to identify those patients with significant abnormalities who were not identified by a traditional lipid panel. The usefulness of tracking advanced lipid measures as a guide to more effective treatment and risk management was also determined.

**Methods:** Lipid data were collected on 300 patients who were managed by a family physician or nurse-practitioner using LipoMeds and other advanced tests for a period of 3 months to 1 year. Data were obtained through retrospective chart review, inputted to a Teleform Scan sheet, and then entered into SPSS for analysis.

**Results:** Preliminary data analyses reveal that many patients had hidden lipid risk factors, identifiable only by the advanced lipid measures. Medical treatment was implemented for many patients who otherwise might not have been selected for treatment. Analyses are ongoing to determine the degree of success in reaching recommended clinical outcomes using the advanced lipid data. Requirements for combination drug therapy to reach goal will be a special focus. All analyses will be completed by December 2001.

**Conclusions:** Study results support the importance of primary care providers becoming competent in the use of advanced lipid measures to reduce risk factors through aggressive lifestyle and medical management. Care received and health care outcomes are significantly different when primary care clinicians use advanced lipid measures with their primary prevention patients. The clinical utility and cost-effectiveness of these measures for use in primary care have been initially validated through this study.

### **P-83** A Unique Multirisk Factor Reduction Program in Family Practice

*Maureen R. Courtney, University of Texas at Arlington*

**Purpose:** This study investigates an innovative clinical program to identify and reduce cardiovascular risk factors for patients in a busy family practice. The Cardiovascular Assessment, Prevention, and Disease Management (CAP-D) Program is located within the family practice and is managed by a family nurse-practitioner (FNP) in consultation with the medical director. Patients are referred to the FNP by their primary care providers (PCPs) in the practice for targeted cardiovascular risk assessment, which includes an in-depth lifestyle and medical history, selected physical exams, advanced lipid measures (LipoMed, hs-CRP, Lp(a), and homocysteine), ankle-brachial index, and body composition per BIA. A comprehensive Cardiovascular Risk Report with a recommended plan for lifestyle and medical management is developed. CAP-D patients are then managed by the FNP or returned to their PCP for ongoing management. If managed by the FNP, patients receive lifestyle counseling and medical management for their diabetes, hypertension, and/or dyslipidemia. Patients return to the FNP for risk reduction followup every 2–3 months or as indicated.

**Methods:** Patient data (process and outcome) for the first year of the CAP-D Program operation have been collected prospectively and entered in a SPSS database by a research assistant. Health care costs also have been examined.

**Results:** Data analyses are currently underway and are planned to yield (1) a descriptive profile of typical patients in a family practice population deemed in need of comprehensive cardiovascular risk management; (2) patient outcomes regarding the management of multiple risk factors; and (3) determination of the cost-effectiveness of a specialized program operating within a family practice, particularly one that uses advanced lipid measures.

**Conclusions:** Assisting patients to reduce cardiovascular risk factors requires an in-depth assessment and rigorous management—factors that are difficult to achieve in a busy family practice. The availability of a specialized CAP-D Program operated by an FNP within the family practice may be a cost-effective intervention to reduce the burden of unnecessary cardiovascular disease.

### **P-84** Lone Mothers Are at Higher Risk for Cardiovascular Disease Compared to Partnered Mothers: Data From the National Health and Nutrition Examination Survey III (NHANES III)

*Lynne E. Young, University of Washington, Susanna Cunningham, Diana Buist*

**Purpose:** The purpose of this study was (1) to compare selected cardiovascular disease (CVD) lifestyle risks (smoking, obesity, and physical activity) and relevant socio-demographic variables, health, and psychosocial

characteristics in partnered versus lone mothers and (2) to examine the relationship between partner status and having experienced a CVD or CHD event.

**Methods:** Data from NHANES III were used to identify 1,446 women < 60 years with 1 or more children < 17 years. Weighted logistic regression was used to compare the prevalence of CVD risk factors in 2 groups of mothers, lone (43 percent) versus partnered (57 percent).

**Results:** Compared to partnered mothers, lone mothers were heavier, current smokers, less educated, less likely to have health insurance, and more likely to have an income < 1 of the poverty index ratio (PIR) and to have received Medicaid, food stamps, and WIC. Additionally, lone mothers were more likely to report having had an MI, to have diabetes and/or hypertension, and to report fair/poor health. After adjusting for age, PIR, receipt of Medicaid, education, obesity, and physical activity, women who had experienced a CVD event (MI, CHF, or stroke) were 3.28 times more likely to be a lone mother than a partnered mother (95 percent confidence interval [CI] 1.80 and 1.84). Multivariate analyses demonstrated that lone mothers were also significantly more likely to have hypercholesterolemia, hypertension, and nongestational diabetes.

**Conclusions:** Low-income lone mothers need to be singled out for primary prevention, with a focus on weight control, smoking, hypercholesterolemia, hypertension, and diabetes. Professionals and low-income lone mothers should collaborate to develop programs and policies in support of lone mothers' healthy lifestyles and conditions of living.

#### **P-85 A Comparison of Stroke Risk Factors in Men and Women With Disabilities**

*Janice L. Hinkle, Ph.D., Villanova University*

Early recognition and treatment of stroke uses health promotion efforts that focus on the modifiable risk factors of high blood pressure, history of transient ischemic attack (TIA), atrial fibrillation (AF), and diabetes. The incidence of these four modifiable risk factors is high in the disabled population in general, but it is not known if it differs between men and women in this population. This is essential information to have before proceeding with the development of targeted health promotion activities to reduce stroke.

The purpose of this descriptive study was to compare males and females with a disability on risk factors for stroke. The specific aims were to identify whether male and female individuals with a disability differed in their mean systolic or diastolic blood pressure (BP) or in self-reported rates of TIA, AF, or diabetes.

Data were collected on the four modifiable risk factors at a variety of conferences and meetings targeted at individuals with a disability. Results of the analysis of variance (ANOVA) used to compare the mean diastolic and systolic BPs of the men and women with a disability and the chi-

square used to test for differences in the self-reported rates of AF, TIA, and diabetes will be presented.

This study has important implications for increasing the proportion of persons appropriately counseled about stroke risks. The identification of differences in stroke risk factors between men and women with a disability can be used to develop appropriate health promotion interventions to decrease stroke in this population.

#### **P-86 Benefits of a Pre-ESRD Education Program**

*Betsy B.D. Ripley, M.D., Virginia Commonwealth University, Ann Compton, M.S.N., F.N.P., Emily Kutzer-Rice, Michele Heny, F.N.P.*

Pre-End-Stage Renal Disease (ESRD) education has been increasingly recommended, although few studies have evaluated the outcomes. A case control study of the outcomes of a multidisciplinary 9-week pre-ESRD education program was evaluated. The weekly program included options, diet, medications, psychosocial, BP, and rehabilitation. Sixteen case HD patients (6M/10F, age  $57 \pm 13$  years, 14 Blacks/2 Whites, etiology 11 DM, 4 HTN, 1 PCKD) who had attended the options and at least 2 other classes were matched to 16 control patients (8M/8F, age  $51 \pm 14$  years, 14 Blacks/2 Whites, etiology 10 DM, 6 HTN). Chart reviews were performed to determine demographics, access at time of initiating HD, status of first dialysis, pre-HD, 60- and 90-day labs, hospitalizations, employment, and treatment compliance. T-tests were performed to compare the case and control patients with significance at  $p < 0.05$ . Significantly more class attendees had a functioning permanent access (69 percent versus 25 percent) and an elective first treatment (69 percent versus 31 percent) compared to the control patients. Mean arterial pressure was higher in the control subjects at the time of first dialysis (case  $108 \pm 16$ , control  $127 \pm 19$  mmHg) but was similar at 90 days (case  $108 \pm 14$ , control  $108 \pm 17$ ). Phosphate (case  $5.6 \pm 1.6$ , control  $6.5 \pm 3.1$  mg/dL) and hematocrit (case  $29 \pm 5$ , control  $27 \pm 3$  percent) were similar before dialysis. Compliance with treatment time and duration was significantly better for the case patients. Patients who receive pre-ESRD education are better prepared for dialysis, as shown by the higher rate of functioning permanent access and the predominance of elective first treatments. Pre-ESRD education can have a beneficial impact on improving patient outcomes.

#### **P-87 Nurse-Managed Blood Pressure Telemonitoring With African Americans**

*Nancy T. Artinian, Ph.D., Wayne State University, Olivia G.M. Washington, Thomas N. Templin*

There is an urgent need to find better ways to control and treat high blood pressure. The specific aims of this randomized controlled trial are (1) to compare usual care only with home telemonitoring/telecounseling plus usual care to determine which has the greatest effect on change in blood pressure from baseline and (2) to examine why the intervention works to control blood pressure by

examining selected mediators, i.e., dietary habits, physical activity level, weight loss, reduced alcohol intake, compliance with an antihypertensive medication regimen, and contact with a primary care provider. Otherwise healthy African American, English-speaking men and women (n = 400) who are > 18 years with a SBP >140 mmHg and a DBP > 90 mmHg will be conveniently selected from community sites. Participants will be randomly assigned to one of two treatment groups that are stratified by use or nonuse of antihypertension medication—group A, home telemonitoring/telecounseling plus usual care, or group B, usual care only. Participants in group A will receive usual care plus 18 sessions of weekly telemonitoring and feedback combined with lifestyle modification telecounseling. Data will be collected at baseline and at 3, 6, and 12 months. Analyses will include mixed design analysis of variance, general mixed linear model approach to repeated measures, and MANOVA.

### **P-88** **Perceptions of the Environment for Physical Activity Among High- and Low-Risk Counties**

*Emily Corbett Spangler, M.D., West Virginia University, Paul Gordon, Debra Krummel, Ph.D., Nicole Morrison*

As a part of the West Virginia Cardiovascular Health Program funded by the Centers for Disease Control and Prevention, a qualitative study was conducted to find out whether differences existed between a low-risk county for cardiovascular disease (CVD) and high-risk counties for CVD in relation to community members' and public officials' perceptions of the environment as they relate to physical activity (PA). The selection of counties was based on cardiovascular mortality rates, prevalence of obesity, sedentary behavior, ruralness, median income, and population. Upshur County was selected as the low-risk county, while Lewis and Doddridge Counties (combined due to population density and aggregation of Behavioral Risk Factors Surveillance System data) were chosen as the high-risk counties. Twelve public officials were surveyed by telephone in each county, while 100 community members in Upshur County, 76 community members in Lewis County, and 75 community members in Doddridge County were surveyed in person. Community members in the low-risk county reported more opportunities for PA (i.e., more safe sidewalks, more indoor facilities for PA, and more adult sport leagues) than in the high-risk counties. Public officials in the low-risk county also reported more opportunities for PA (i.e., more walkable streets; more indoor facilities for PA; and more parks, playgrounds, and trails) than did the public officials in the high-risk counties. The perceptions of environmental opportunities and policies for PA in a low-risk county could contribute to the lower prevalence of risk factors and cardiovascular mortality rate in that county.

### **P-89** **Nutrient Intakes of Rural, Fifth Grade Children at Risk for Cardiovascular Disease**

*Debra Ann Krummel, Ph.D., West Virginia University, Colleen Ann Kelley, Elizabeth Gonzales, William Neal*

**Purpose:** The purpose of this study was to determine the nutrient intakes of children living in a county with a high prevalence of cardiovascular disease.

**Methods:** The dietary intakes of 250 fifth graders were assessed using the Youth/Adolescent Food Frequency Questionnaire. Children were categorized by risk status (at-risk or not-at-risk using standard risk factors of high body mass index, blood pressure, or cholesterol) and level of fat in the diet (< 30 percent fat or > 30 percent fat).

**Results:** At-risk children consumed significantly less calories, carbohydrates, protein, fat, vitamin E, and calcium ( $p < 0.01$ ). Children consuming higher fat diets consumed significantly more protein, fat, and vitamin E, and significantly less carbohydrate and vitamin C ( $p < 0.01$ ).

**Discussion:** The lower consumption of nutrients by at-risk children suggests that some family modification of diet may have occurred due to family risk status. Consistent with the literature, higher fat eaters consumed diets higher in calories, which can contribute to obesity, and lower in vitamin C, suggesting that fewer fruits and vegetables were being consumed.

### **P-90** **Outcomes of Medical Nutrition Therapy for Postmenopausal Women**

*Debra Ann Krummel, Ph.D., Department of Community Medicine, West Virginia University*

**Purpose:** The purpose of this study was to assess the impact of a medical nutrition therapy employing a cognitive-behavioral approach on cardiovascular health outcomes in postmenopausal women.

**Methods:** Fifty-one women with hypercholesterolemia (mean age 58 years) were randomized to a usual care (one counseling session with a dietitian and no further followup) or an intervention group (four sessions plus telephone counseling) for 6 months. Dietary goals were a high-fiber, low-fat (20 percent of calories) eating plan. Physical activity was encouraged. Repeated, computerized 24-hour recalls and food behavior instruments were used to assess dietary intake and patterns before and after the intervention. Blood lipids were measured in a standardized, clinical laboratory.

**Results:** Forty-two women completed the study (19 percent attrition). At baseline, there were no significant differences in risk factors between the groups. As expected, the prevalence of risk factors was high: 68 percent for obesity, 76 percent for waist-to-hip ratio > 0.08, and 54 percent for sedentary lifestyle. There was a significant increase in knowledge following the intervention ( $p < 0.0005$ ). While significantly more women in the intervention group met dietary ( $p = 0.03$ ) and lipid goals ( $p =$

0.02), most women were unable to achieve lipid goals. The number of contacts was not related to changes in lipids; however, the number of nutrition classes attended was significantly related to intake of calories, cholesterol, and fat.

**Discussion:** Individual and group counseling produced some behavioral change in women. However, more contacts or intensive intervention would be necessary for most women to achieve lipid goals.

### **P-91** Impact of a Nutrition Intervention on Quality of Life in Subjects With High Risk Factors for Cardiovascular Disease

*Sandra Marie Magnetti, PHG., Dr.P.H., West Virginia University School of Medicine, Debra Krummel, Ph.D.*

The purpose of this study was to assess the impact of a medical nutrition therapy employing a cognitive-behavioral approach on health outcomes and quality of life in postmenopausal women. Fifty-one women were randomized to a usual care (one session with a dietitian) or intervention group (four sessions plus telephone contact). This abstract will discuss the impact of the intervention on quality of life (QOL) as measured by the SF-36.

Our results revealed significant changes in two of the eight components of QOL as measured by the SF-36. There were significant improvements in the intervention group regarding the measures of vitality (VT),  $p < 0.002$ , and general health (GH),  $p < 0.01$ , from below the national norms at baseline to above the norms at the end of the 3-month treatment period. Significant differences were evidenced only in high school graduates and above (75 percent of group) for VT and GH. Additionally, those who reported improvements in VT and GH also significantly improved their triglycerides.

We conclude that this type of nutrition therapy using a cognitive-behavioral approach with subjects has a positive impact on two elements of QOL: vitality and general health in subjects who have a high school education or above.

Future studies should examine the relationship between triglycerides and VT and GH. We also recommend that further study be devoted to using this method in lower educational groups.

### **P-92** Faith Communities and Informal Long-Term Care

*Bonnie Hartman Arkus, Women's Heart Foundation*

Long-term care needs of patients with congestive heart failure and patients with complications related to pregnancy (e.g., HTN, abnormal blood sugar) present untold challenges to health care professionals. Care is best managed through a continuum.

By developing informal care guidelines for faith communities to better assist persons with congestive heart failure or promote/foster mentoring relationships for preg-

nant young women, cost containment efforts need not compromise quality care.

As the project manager for the Women's Heart Foundation's (WHF's) Healthy Hearts Program for Faith Communities, Ms. Arkus has developed the essential tools and guidelines for more effectively managing care within faith communities. Various care structures will be presented with options for delivery of informal, nonskilled care based on available resources. The proper identification of and response to risk, recommendation for basic infrastructure, and data sets for managing volunteer skills and client needs utilizing Microsoft Office Suites will be introduced. The WHF Healthy Hearts Program for Faith Communities will be available for purchase, including health screening tools, wellness guides, risk assessments, and health data forms/records for consumers to better manage their own health information.

### **P-93** The Prescription for a Walkable Community—The Role of Public Health Practitioners

*Deborah A. Spicer, New York State Department of Health*

National and international health organizations are calling for changes in our environment that will make it easier for people of all ages and abilities to be more physically active. Walking is the activity that can most readily be incorporated into daily life. Because of our auto-centered environment and policies, many people do not have a safe and comfortable place to walk. The Healthy Heart Program of the New York State Department of Health, under a Comprehensive Cardiovascular Health Grant from the Centers for Disease Control and Prevention, has engaged numerous nontraditional State and local partners in initiatives that improve pedestrian safety, access, and aesthetics. We have learned that one important role of the public health sector is to help raise the demand for more walkable communities among citizens and community leaders. This session will describe how we have created new partnerships and some of the joint efforts that we have undertaken at the State and local levels to create this demand. In part as a result of interest generated by the public health sector, we are beginning to see changes in State level policies; these results will also be discussed.

### **P-94** Cardiovascular Disease Risk Factors Knowledge Improvement: A Community-Based Educational Intervention

*Laurens Holmes, Global Health Research Institute*

**Objectives:** The objectives of the study were to assess the cardiovascular disease risk factor knowledge, correlate knowledge with cardiovascular disease status, and improve cardiovascular health knowledge among African Americans in Crosby, TX.

**Methods:** A self-assessment survey of cardiovascular health status was administered to 98 African American males (50) and females (48), aged 45 to 79. A 20-item questionnaire on knowledge of cardiovascular risk factors

was presented as pretest and posttest in evaluating knowledge and was correlated with cardiovascular health status. A 1-hour educational material based on standardized curriculum on risk factors prevention was presented to the study participants. Analysis was performed using a one-way analysis of variance, paired t-test, and p-values of 0.05.

**Results:** This preliminary study results indicates a statistically significant difference between pretest and posttest. Secondly, though not statistically significant, knowledge of cardiovascular risk factor after adjustment for income level, gender, and educational background correlated positively with cardiovascular health status.

**Conclusion:** Educational intervention appears to be effective in enhancing knowledge of cardiovascular risk factors. However, the attitude towards cardiovascular health was not examined by this study. Therefore, to examine the role of education in cardiovascular disease prevention or health protection, design must include the evaluation of attitude towards cardiovascular health as a component of the intervention.

### **P-95** Worksite Internet Nutrition

*Torin J. Block, Block Dietary Data Systems*

**Purpose:** The purpose of this study was to develop and test an e-mail-driven, worksite-based program to improve dietary intake.

**Methods:** Eighty-four employees (the majority of those to whom it was offered) completed a dietary questionnaire on their fruits/vegetables/fiber and dietary fat intake. They then chose to work on one of those dietary areas for the subsequent 12-week program. Weekly e-mails were based on behavioral change principles and tailored to individual lifestyle characteristics. Each e-mail contained health information (e.g., the role of saturated fat in heart disease), tailored tips for improving their diet, and small steps to try the following week.

**Results:** More than half said that they were budget-conscious when buying food. Eighty-three percent of respondents said they read at least half the e-mails and would recommend the program to others; 91.5 percent found the tips helpful, and more than half talked with someone else about improving their diets. Eighty-three percent tried to make changes in their diet, and 90 percent of

those reported some success. Substantial stage-of-change movement was seen: two-thirds to three-fourths of those initially "not planning or "thinking about" making dietary changes moved to a higher stage, for both fat intake and fruit/vegetable/fiber intake.

**Conclusions:** This is a very cost-effective way to help employees and their families improve their dietary behaviors.

### **P-96** Gender and Racial Disparities in Pre-AMI Diagnosis: Missed Opportunities?

*Christine E. Chaisson, M.P.H., Data Coordinating Center, Boston University School of Public Health, Jeong-Min Lee, Karen Freund, Lindsey Bramwell, Arlene S. Ash, Ph.D.*

Women and black patients often present with more severe disease and have poorer coronary heart disease (CHD) outcomes, perhaps because their early risk factors and initial CHD symptoms are under-recognized. For people hospitalized for acute myocardial infarction (AMI), we see whether gender and race affect the likelihood of a CHD diagnosis in the pre-AMI year, either overall or for those with other atypical presentations.

We examine ICD-9-CM inpatient and outpatient diagnostic codes during the 365 days preceding each of 306,175 1999 Medicare fee-for-service AMI admissions. "Marker" conditions that may represent misdiagnosed CHD are non-CHD heart disease; pulmonary diseases; digestive disorders; general symptoms (including syncope, dizziness, fatigue); and musculoskeletal (including costochondritis and noncardiac chest pain). We compare the prevalence of pre-AMI CHD diagnoses within marker condition cohorts, by race and gender.

CHD was recorded in the pre-AMI year for 35.8 percent overall, with black men least likely to have recognized CHD (32.1 percent) and white men most likely (38.2 percent).

Recognition of CHD prior to an AMI is far from universal and differs by race and gender. Within cohorts of people with CHD-like symptoms, CHD recognition is more common but substantially less so for black women as opposed to white men.

**P-96.** Percentage With Any CHD Diagnosis in the Pre-AMI Year, Within Marker Condition Cohorts

	<b>Non-CHD Heart</b>	<b>Pulmonary</b>	<b>Digestive</b>	<b>General Sx</b>	<b>Musculoskeletal</b>
White Female	51.1	51.0	46.3	45.5	55.2
White Male	57.6	55.3	52.1	53.6	60.0
Black Female	46.9	49.2	45.3	45.1	52.7
Black Male	49.0	50.0	48.2	49.3	53.2

## **P-97** Weight Loss and Risk Factor Management in the Community Setting

*Mary Catherine Vernon, M.D., Lawrence Family Practice Center*

Obesity is a leading cause of death in the United States, making it urgent that effective obesity treatments be identified that can be easily implemented in the community setting. The purpose of this study was to determine the effect of a clinic-based diet and/or medication weight-loss program on weight and serum lipids.

We performed a retrospective chart review of patients attending an outpatient family practice clinic using a multicomponent, outpatient weight management program including periodic individual visits, and either a low-fat diet/medication (MED) or a low-carbohydrate (< 20 grams/day) diet program (LC) over a 3-month period. The main outcome measures were body weight and serum lipids. Clinical data were collected on standardized flow-sheets and abstracted for data analysis.

Of 174 patients identified, 76 patients had complete pre-treatment and posttreatment data. The demographics of the two groups were similar. The baseline BMI was 38.9 kg/m<sup>2</sup> (SD = 8.6), the mean age was 45.6 years (SD = 9.9), 70.6 percent were female, and 91.2 percent were Caucasian. After 3 months, there was a loss of body weight of 12.7 percent for the MED group and 8.2 percent for the LC group ( $p < 0.05$  for the difference between groups). For MED and LC respectively, the mean change in total cholesterol was -12.8 percent and -10.4 percent; LDL-C: -11.8 percent and -5.0 percent; triglycerides: -32.2 percent and -39.2 percent; HDL-C: -2.4 percent and +6.3 percent; cholesterol/HDL ratio: -12.5 percent and -19.6 percent. There were no adverse effects.

An outpatient weight management program including a low-fat diet/medication or low-carbohydrate diet program was effective in improving weight and lipid parameters in the community setting.

## **P-98** Cambodian Community Health 2010

*Sheila Fernández, Lowell Community Health Center, Sidney Liang*

**Purpose:** The goal of the Cambodian Community Health 2010 (CCH 2010) is to eliminate health disparities among the Cambodian population of Lowell in regards to cardiovascular disease (CVD) and diabetes.

**Statement of Methods Used:** Our outreach efforts involve creative strategies such as learning tours at local hospitals, health centers, police department, and fire station; holding exercise groups where participants practice Tai Chi; educational fruit and vegetable picking tours where nutritional facts are discussed; educational groups where we speak about CVD and diabetes; and health fairs.

Our advocacy has and continues to link Cambodians who have CVD or diabetes to culturally appropriate health

services, thus gaining better health care. We provide services such as interpreting, providing referrals to needed services, and providing one-on-one education about CVD and diabetes.

**Summary of Results:** The Cambodian population of Lowell has numerous risk factors, including high smoking rates, and has limited awareness of CVD and treatment options. This places them at a disproportional risk for morbidity and mortality due to CVD.

**Conclusions:** Outreach and advocacy interventions in the community and health care system will continue to be implemented as stated in our community action plan.

## **P-99** Existing and Developing Community Health Promotion Programs in New York State

*Christopher C. Ashley, M.D., New York State Department of Health, Margaret O. Casey, R.N.*

**Brief Statement of Purpose:** The intent of this intervention is to promote the introduction of environmental wellness programs in communities across New York State and to assess existing health promotion programs.

**Statement of Methods or Process Used:** All hospitals in New York State were invited to attend one of several colloquia across the State. Information on environmental interventions was provided, and workshops were held to develop action plans at each site. Participating hospitals disclosed the nature of their existing prevention programs and those present in their communities. Participants were followed up and surveyed to assess what further action had been taken based upon their experience at the colloquium attended. Interventions targeted physical activity, heart-healthy eating, and smoking cessation.

**Summary of Results:** Environmental programs to promote community health were effectively introduced to communities where these methods were not previously used.

**Statement of Conclusions:** The prevalence of environmental programs is low in communities across New York State. Simple educational programs can effectively introduce environmental programs into communities.

## **P-100** Cardiovascular Risk Reduction Clinic: A New Health Care Intervention Promoting Health and Disease Prevention in Patients With Established Cardiovascular Disease

*Oanh Martin, Pharm. D., Providence VA Medical Center, Peter Petropoulos, M.D., Tracy Uriati, R.D., Thomas H. Wheeler, P.T.*

Long-term health benefits of cholesterol reduction, tobacco cessation, lowering blood pressure, and tight glycemic control in patients with cardiovascular disease have been well established. Recent studies, however, have demonstrated that the majority of patients with established cardiovascular disease fail to achieve target goals as set

forth by national guidelines. To address the wide treatment gap and eliminate patient, provider, and system barriers, an interdisciplinary Cardiovascular Risk Reduction Clinic (CRRC) was developed. To evaluate the clinical outcome of a Pharm.D.-coordinated CRRC, a nonrandomized pilot study was conducted after the first 6 months of operation. Complete data for before and 6 months after CRRC visits were available in 130 patients and demonstrated a significant reduction in the mean Hgba1c from 8.73 percent to 7.54 percent ( $p < 0.005$ ), mean LDL from 116 mg/dL to 95 mg/dL ( $p < 0.005$ ), mean systolic blood pressure from 141 mmHg to 127 mmHg ( $p < 0.005$ ), and mean diastolic pressure from 75 mmHg to 72 mmHg ( $p < 0.005$ ). Of 61 patients available for tobacco cessation, 7 of 15 patients interested in cessation have successfully quit. A Pharm.D.-coordinated interdisciplinary CRRC health care intervention improves performance measures and achieves target goals for cardiovascular risk factor reduction through aggressive therapeutic lifestyle modification counseling and pharmacotherapy.

### **P-101 The Evaluation of Secondary Prevention Practices in an Acute Care Setting—A Heartcare Partnership**

*Jack William Taylor, M.S., St. Mary's Regional Heart Center*

Information was obtained in order to evaluate and improve secondary prevention of patients who have experienced a myocardial infarction in a hospital setting according to the guidelines of the American Heart Association (AHA).

Inpatient records were obtained on 50, 67, and 114 patients at baseline, 3 months, and 6 months, respectively; these patients experienced a myocardial infarction through the emergency department at St. Mary's Hospital. Following the initial assessment, protocols were developed to encourage providers to adhere to the guidelines for secondary prevention of myocardial infarction (AHA).

A higher incidence of compliance was observed at both the 3-month and 6-month observation periods: LDL-C measured, 32 percent - 38 percent - 62 percent; patients placed on lipid-lowering therapy, 43 percent - 45 percent - 63 percent; counseling for smoking cessation, 85 percent - 100 percent - 98 percent; appropriate physical activity recommended, 91 percent - 100 percent - 100 percent; patients placed on beta blockers, 60 percent - 89 percent - 88 percent; and if the ejection fraction was less than 35 percent, 68 percent - 50 percent - 72 percent were placed on an ACE inhibitor.

In comparison to national norms, a higher incidence of compliance with the AHA guidelines was indicated and improvement in compliance with the majority of these items over a 6-month period. Anticipated barriers were identified, and specific measures were implemented with success in order to improve compliance levels more in line with actual AHA standards. Further improvement in the protocols is being developed in partnership with a

State peer review organization to improve the care of heart disease in West Virginia.

### **P-102 Supports and Barriers to Healthy Eating and Physical Activity Identified From Diverse Low-Income Focus Group Participants**

*Rebecca M. Mullis, Ph.D., R.D., L.D., Department of Foods and Nutrition, The University of Georgia, Teresa B. Kaley, R.D., L.D.*

The Department of Foods and Nutrition at the University of Georgia carried out the Georgia Cardiovascular Disease Prevention Initiative in partnership with the Georgia Department of Human Resources. The University of Georgia conducted 15 focus groups in 11 rural and urban areas of Georgia. The primary objective of this work was to reduce the risk of cardiovascular disease among Georgia residents by determining environmental and policy supports and barriers to healthy eating and physical activity and to solicit ideas about community resources needed to foster healthy eating and physical activity. One hundred and twenty low-income participants represented seven target populations: African Americans, Asians, Hispanics, African American and Caucasian senior citizens and youths, rural residents, and nonsedentary workers. Twelve health department nurse managers also participated in the study. We observed some universal themes across groups with respect to social supports, the environment, and specific messages.

The following objectives should be primary considerations for the future development of environmental and policy community interventions impacting healthy eating and physical activity: (1) incorporate age-appropriate buddy systems as a strategy for helping to initiate and maintain healthy behavior; (2) build community support in various forms, such as walking trails and free or community centers; (3) build healthy eating and physical activity into community social activities; (4) develop point-of-purchase assistance, taste test, and recipes in grocery stores; and (5) provide nutritional values of foods and offer healthy choices in restaurants.

These findings will serve as one step in determining the plan for the prevention of cardiovascular disease in Georgia.

### **P-103 Sedentary Lifestyle in Adult, Working Women: A Group Intervention for Exercise**

*Judith Ellen Swasey, M.S.N., R.N., University of North Carolina at Chapel Hill*

A 12-week, group, progressive exercise training program for adult, sedentary, working women was developed and implemented as an intervention to decrease sedentary lifestyle and to promote the adoption and maintenance of a regular exercise program. The program was conducted in 1995 and 1996 in the northeastern United States and in 2001 in the southeastern United States and was supported by a local hospital, university, and the surrounding communities. The theoretical framework for the interven-

tion was Pender's health promotion model and Bandura's social cognitive theory. Components of the intervention included four phases: (1) recruitment and enrollment; (2) progressive educational, attitudinal, and exercise training; (3) achievement of an established goal; and (4) long-term followup. The intervention addressed reducing perceived barriers and enhancing benefits and facilitators associated with exercise: environmental adjustment; role modeling and social support by group leader and guest runners; and cognitive-behavioral restructuring and self-efficacy methods through mastery experiences, vicarious experiences, verbal persuasion, and monitoring physiologic feedback. Short-term outcomes were program attendance and race/walk goal completion. Long-term outcomes were exercise maintenance and positive changes in attitudes towards exercise, existing health problems, and health behaviors. The convenience sample for the first 2 years consisted of predominantly white, professional women ranging in age from 22–71, with the largest subgroups aged 30–39 and 40–49. Of those registered, 34 (54 percent) completed the race/walk goal in year 1, and 26 (72 percent) completed the goal in year 2, a higher than expected (> 50 percent) participation/completion rate. A self-report questionnaire at 6 months provided data on exercise maintenance, health behavior and attitude changes, and program evaluation. The questionnaire return rate at 6 months was 22 percent (1995) and 31 percent (1996), and of those, 71–91 percent maintained exercise, and 43–71 percent altered or adopted new health behaviors. Written comments from participants indicated positive health behavior, health status and affect changes (body image, health, social support, and self-efficacy for exercise) with ranges of 14–57 percent (year 1) and 9–63 percent (year 2). Additional followup data for the program year 2001 will be collected and analyzed in December 2001 to January 2002.

#### **P-104 Cardiovascular Disease Risk Assessment and Prevention in PS 17**

*Srigouri Maguluri, University of Rochester School of Medicine and Dentistry*

The proposed study falls into an existing collaboration between the Orchard Street community classroom and the University of Rochester Medical School. The study assesses the risk for cardiovascular disease (CVD) within the school-based population of students aged 5–10; in addition, it organizes preventive measures to combat these risks. Assessment of risk is done via a questionnaire, where pertinent family history of CVD, diabetes, hypertension, smoking, obesity, and other illnesses is taken. Furthermore, students' knowledge about cardiovascular health and their own health behaviors, such as diet and exercise, is included. After this assessment, students are placed in either a control group or two experimental groups receiving different preventive interventions. After a period of approximately 5 weeks, preliminary data will be gathered for evaluation of the treatment effects.

The aim of a community intervention program such as this one is to affect individual health through social channels, which in this case is a school. One of the first steps in this process is to assess current health knowledge in this population of children and parents and to appreciate how this affects their health-related behaviors. By working with the students, the project will also be able to involve other family members in the effort to promote education about CVD and subsequently deliver preventive measures geared towards a population that is mostly African American. Working with the children and their families will enable them to feel that their health care concerns are being attended to, and perhaps this may impact their inclination to seek preventive health care in the future. The preventive measures are in the form of education regarding proper nutrition and ways to be more active.

Currently, we have just completed the data collection process and are evaluating the results and, therefore, do not have a complete summary of the results and conclusions.

#### **P-105 The Role of Sleep-Disordered Breathing in Cardiovascular Disease**

*Terry Young, Ph.D., Department of Preventive Medicine, University of Wisconsin-Madison, Paul Peppard, Ph.D.*

Sleep-disordered breathing (SDB) is a condition of repeated episodes of partial and complete upper airway closure (apnea and hypopnea) during sleep. The acute effects of these episodes include dramatic fluctuations in heart rate and blood pressure, bursts of sympathetic nerve activity, increased intrathoracic negative pressure, and sleep fragmentation. Hypertension, cardiovascular disease, and stroke are thought to be chronic consequences of untreated SDB, but only within the past few years have epidemiologic data emerged that adequately address these hypotheses. Findings from the Wisconsin Sleep Cohort Study, a population-based longitudinal study ( $n = 1,400$ ) provide the strongest evidence for a causal association of SDB and the development of new hypertension. The likelihood of developing hypertension over a 4-year period in adults with moderate or worse SDB (defined by the occurrence of > 15 apnea and hypopnea events per hour of sleep) compared to those with no SDB was threefold greater (independent of potential confounding factors). Several other studies, including the Sleep Heart Health Study, have shown cross-sectional associations of SDB and hypertension and self-reported cardiovascular disease and stroke. Because the prevalence of undiagnosed SDB is high in adults (4 percent of women and 9 percent of men are estimated to have moderate or worse SDB), a causal role of SDB in cardiovascular disease would result in a significant number of cases. Greater clinical and public health attention needs to be focused on the potential importance of SDB, a treatable disorder, in cardiovascular morbidity and mortality.

**P-106** **Increasing the Intake of Flavanol-Rich Foods: One Approach to Reducing the Risk of Coronary Heart Disease and Stroke**

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*Carl L. Keen, Department of Nutrition and Department of Rheumatology/Allergy and Clinical Immunology: MED, University of California at Davis, M. Eric Gershwin, Harold H. Schmitz*

A large body of mechanistic, epidemiological, and clinical research data supports the concept that flavanol-rich, plant-based foods and beverages, including some cocoas, teas, and grape juices, have the potential to enhance cardiovascular health. For example, research from several different groups suggests that certain dietary flavanols have aspirin-like effects with regard to reducing platelet activation. In this presentation, data will be reviewed on the bioavailability and bioactivity of select dietary flavanols. The *in vitro* and *in vivo* effects of these flavanols will be compared and contrasted. Results from three recent studies that we have conducted on the acute effects of flavanol-rich foods on platelet reactivity in healthy adult subjects will be presented. Common findings in these studies are that dietary flavanols can be rapidly absorbed, and this uptake can be associated with a rapid reduction in platelet reactivity. The magnitude of the effects on platelet reactivity is similar to that observed with low-dose aspirin. If long-term, randomized, multicenter trials confirm these data, promoting the regular consumption of specific flavanol-rich foods may present an effective public health strategy for reducing the risk of coronary heart disease and stroke.

**P-107** **Healthy People 2010 Knowledge Test**

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*Richard Edward Miller, George Mason University*

Multiple choice items measuring knowledge of Healthy People 2010 objectives were constructed by the author and were field tested on undergraduate students ( $n = 30$ ) studying epidemiology. Knowledge test items were generated for each of the 467 objectives comprising Healthy People 2010's 28 focus areas. From student responses, the author was able to examine validity and reliability qualities of the knowledge test items. These items will also be submitted to health promotion and disease prevention professionals in the field, to further establish the validity and reliability of the items in measuring Healthy People 2010 knowledge. Selected knowledge items have been published by Haworth Press in the text, *Epidemiology Applied to Health Promotion and Disease Prevention Professionals* (Miller, 2001 in press). Copies of all 467 items will be available to conference attendees.

**P-108** **Development of a Coronary Heart Disease Decision Support Tool**

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*Lambert Anthony Wu, M.D., Mayo Clinic, Thomas E. Kottke, M.D., M.S.P.H., Mark J. Brekke, Lee N. Brekke*

**Background:** A decision support tool that is able to model the effect of various therapeutic and technological

interventions on coronary heart disease is needed to assist in understanding the impact of these interventions at the population level.

**Methods:** We created seven modules corresponding to possible coronary heart disease states that are commonly encountered, including congestive heart failure, tachyarrhythmia, stable angina pectoris, acute coronary syndrome, bradycardia, postmyocardial infarction, postcoronary artery bypass grafting, and a healthy individual module. Within these modules, we have created decision-intervention-outcome flow pathways to simulate clinical practice and have used a stochastic approach to calculate the impact of the interventions on the incidence of coronary events and mortality. We can generate the outcome probabilities for an event based on the likelihood of patient demographic characteristics and risk factors, treatment efficacy and application, and candidacy for interventions and disease prevalence. When fully implemented, during a simulation run, we will simulate a population by randomly assigning demographic and risk characteristics according to community distributions. We can then run each individual in the simulated population through a treatment model, with outcomes generated stochastically, age the population, and then evaluate outcomes, such as mortality and prevalence of disease. The effects of therapeutic or technological interventions could then be evaluated based on changing parameters within the treatment models.

**Conclusions:** We are developing a decision support tool that will assist health professionals and health policy planners in estimating the effects of resource allocation and public policy on coronary artery disease outcomes.

**P-109** **Epidemiologic Correlates of Excessive Gestational Weight Gain**

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*Isabel D. Fernandez, M.D., Ph.D., University of Rochester School of Medicine*

Gestational weight gain has been implicated in increased postpartum weight retention, which in turn may contribute to subsequent overweight and obesity, established risk factors for cardiovascular disease morbidity and mortality. The contribution of childbearing in the development of obesity is of public health concern because the largest increases in obesity prevalence have been observed among women of reproductive age. Therefore, the identification of epidemiologic characteristics associated with excessive gestational weight gain will serve to detect women who are at risk of becoming obese after pregnancy and to develop primary and secondary prevention interventions. Here, the association among behavioral and psychosocial variables and an index of adequacy of prenatal care utilization with excessive gestational weight gain was examined. Data were obtained from an upstate New York population-based birth registry. Multinomial logistic regression was performed to model gestational weight gain according to the Institute of Medicine's recommendations as more than recommend-

ed, recommended (reference category), and less than recommended. Statistical significance was established at alpha less than 0.01. Results suggest that behavioral, psychosocial, and adequacy of prenatal care utilization variables are significantly associated with gaining excessive gestational weight. Interventions during pregnancy could contribute to stop the upward trend in the prevalence of obesity.

### **P-110** **Twenty-five Years of Corporate Health Promotion**

*Ronald John Cook, Sentry Insurance*

Health promotion at Sentry Insurance originated in the 1950s with the conversion of the old coalbunker into the "Bunker Health Club." This humble beginning led to a wellness/fitness center as part of the new corporate headquarters built in the 1970s. This presentation will provide an overview of the past 25 years of corporate health promotion.

This presentation will cover a historical review of health promotion activities, report on a comparison study of sick leave and health care claims of users and nonusers, blood pressure screening data, and the Walking Club program. Regular fitness center exercisers had significantly smaller health claim utilization (\$507 users, \$1,602 nonusers), and Walking Club members had a \$363 decrease in 1 year (\$974 to \$611).

Individual health is largely determined by factors outside of clinical medicine. Some experts project as high as 80 percent. The experiment in health promotion over the past 25 years has provided a supportive environment for employees, retirees, spouses, and dependents of Sentry Insurance to engage in positive lifestyle behaviors.

### **P-111** **Influence of Cardiovascular Disease on Racial Disparity in Life Expectancy**

*La Mar Hasbrouck, M.D., M.P.H., Centers for Disease Control and Prevention*

**Purpose:** The purpose of this study was to quantify the contribution of cardiovascular disease (CVD) to the life expectancy (LE) gap between Whites and Blacks.

**Methods:** NCHS mortality files for 1998 and multiple-decrement life table techniques to decompose LE differentials by cause of death were used to examine difference in LE between Whites and Blacks.

**Results:** In 1998, Whites lived 6.2 years longer than Blacks. Overall, heart disease (1.7 years; 27.4 percent) was the leading contributor to the difference, followed by cancer (1.2 years; 19.4 percent), homicide (0.6 years; 9.7 percent), and stroke (0.5 years; 8.1 percent). The LE differential was 6.4 years for males and 4.4 years for females. Among males, the leading causes of death that contributed to the LE differential were heart disease (1.2 years; 19.0 percent), cancer (1.0 years; 15.6 percent), and homicide (0.9 years; 14.1 percent). Among females, the

leading causes of death that contributed to the LE differential were heart disease (1.2 years; 27.3 percent), cancer (0.5 years; 11.4 percent), and perinatal disease (0.4 years; 9.1 percent). Stroke accounted for 0.3 years (6.8 percent) of the LE differential among females and 0.4 years (6.3 percent) among males.

**Conclusions:** More than one-third of the LE gap between Whites and Blacks was attributable to CVD. This underscores the importance of eliminating disparities in CVD between these populations.

### **P-112** **Risk Factors for Atherosclerosis Among College Students of Eastern Nepal**

*Vijay Prakash Sharma, BPK Institute of Health Sciences, Raju P. Paudel, Rajendra P. Khanal, Parimal K. Acharya*

**Background:** Atherosclerotic coronary disease and stroke are now assuming epidemic proportions in many developing countries, and Nepal is no exception. This change in the trend of disease is mostly due to a decline in infectious diseases, improvement in nutritional status, and increase in the rate of risk behavior (smoking, obesity, sedentary lifestyle). These risk behaviors are often acquired at a young age. Thus, we screened college students for risk factors to discover the magnitude of the problem, so that timely preventive measures can be taken.

**Methodology:** A cross-sectional survey of 385 students (16 to 25 years) in a hill town of eastern Nepal was carried out with standardized questionnaire and physical examination by medical doctors using a standardized technique. Hypertensives were further evaluated for secondary causes.

**Results:** The male to female ratio was 5:1. The body mass index (BMI) of 100 students (26 percent) was between 20 and 25, whereas 285 (74 percent) students had a BMI below 20. One hundred and nineteen students (31 percent) were using tobacco in one or other forms (cigarettes, bidis, chewing). Mild hypertension (JNC VI) was detected in 19 students (5 percent).

**Conclusion:** Tobacco use is a major risk behavior in young college students. Obesity is not a problem in this age group. Rather, the subnormal range of BMI in two-thirds of people needs to be addressed, in light of the very small frame size of people. Hypertension in 5 percent of students at this age is quite significant and emphasizes the need for hypertensive screening after 20 years of age.

**P-113** **Cardiovascular Disease in Iowa:  
An Applied Logistic Regression Model to  
Iowa's 2000 Behavioral Risk Factor  
Surveillance System Survey Data**

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*Jude E. Igbokwe, Center for Health Statistics, Iowa State  
Center for Health Statistics, Mack Clayton Shelley,  
Jingjing Chen*

This study was aimed at investigating the risk factors associated with Iowa's cardiovascular disease (CVD) development. Iowa's 2000 Behavioral Risk Factor Surveillance System (BRFSS) survey data were used to perform the multiple logistic regression. The BRFSS is based on a representative disproportionate stratified sample of Iowa residents over 18 years of age. The study used the entire sample of the 3,611 respondents for the analysis. The variables examined include health and disability indicators, demographic variables, health behavior factors, and morbidity variables. Data were weighted to represent Iowa's total population. Multivariate logistic regression was performed using a forward model selection procedure. The coefficients and odds ratio for each model was examined.

Results indicate that in Iowa, CVD development was associated with a decline in self-reported health status. The population with diabetes, high blood pressure, or a high level of blood cholesterol was substantially more likely to have CVD. Adoption of healthy behavior, such as not smoking, regular physical exercise, and weight control, was associated with preventing CVD. The elderly and single individuals were more likely to experience a greater risk of CVD. Gender, race, and alcohol consumption were not significantly associated with the incidence of CVD in Iowa's population.

The study suggests that the risk factors associated with CVD and the awareness of healthy behaviors are differentially distributed among social classes in Iowa, based on age and marital status. Health policies should take into account these disparities.

# Special Poster Presentation Section by the Health Resources and Services Administration (HRSA)

## Bureau of Primary Health Care (BPHC)

### Cardiovascular Collaborative Health Centers

On April 11 from 12:15 p.m.–3:15 p.m. and on April 12 from 10:15 a.m.–2:15 p.m., there will be a special display of posters, or story board presentations, by 18 HRSA BPHC-supported Cardiovascular Collaborative Health Centers in Hall B North. Staff from the teams representing these 18 health centers will be available to describe their projects and answer questions from 1:00 p.m.–2:00 p.m. on April 11 and from 11:00 a.m.–12:00 noon on April 12.

#### Changing Practice/Changing Lives: Transforming Practice in America's Health Centers

"Changing Practice, Changing Lives" describes the work of the Bureau of Primary Health Care (BPHC) Health Disparities Collaboratives. The collaboratives assist organizations in changing primary care practice from a reactive mode to a prepared, proactive model of care that is patient/family centered and results in improved health outcomes. The BPHC-supported health centers provide comprehensive primary care services to 10 million medically underserved people across the United States. These populations encompass many of our most vulnerable people, including migrant farm workers and homeless people. Since 1999, in partnership with the Institute for Healthcare Improvement and the Centers for Disease Control and Prevention, more than 350 BPHC-supported health centers have participated in a collaborative learning experience to support the implementation of a chronic care model with a shared goal to delay or decrease the complications of chronic illness.

Thirty-four BPHC-supported health centers currently participate in the Cardiovascular Collaborative and measure their progress toward improvement in processes and health outcomes with nationally defined shared measures. The Cardiovascular Collaborative focuses on the adoption of heart-healthy lifestyles, control of high blood pressure, and compliance with secondary prevention guidelines in patients who already have disease. Community- and state-level partnerships have been developed to support the efforts of patients to manage their health. Health center senior leadership support is essential to drive sustained improvements in primary care practice. Twenty of the participating health centers are represented at the National Cardiovascular Health Conference 2002. These story board presentations capture some of the stories of multidisciplinary health center teams committed to working together to improve the care delivered to medically underserved people and the resulting health outcomes of the populations served.

#### Presenting Health Centers are as follows:

- ▲ *Community Health Care Systems, Inc.;  
Johnson County Center for Community Health*
- ▲ *East Georgia Healthcare Center*
- ▲ *Fair Haven Community Health Center*
- ▲ *Harvard Street Neighborhood Health Center*
- ▲ *Heart of Texas Community Health Center*
- ▲ *High Plains Community Health Center*
- ▲ *Holzer Clinic (Black Lung Clinic)*
- ▲ *Indian Chicano Health Center*
- ▲ *Kalihi Palama Health Center*
- ▲ *Laurel Health System*
- ▲ *Mendocino Community Health Center*
- ▲ *Montana Migrant*
- ▲ *North Woods Community Health Center*
- ▲ *Robeson Health Care Corporation*
- ▲ *Stone Mountain Health Services/  
St. Charles Community Health Clinic*
- ▲ *Sunrise Community Health Center*
- ▲ *Tillamook County Health Department*
- ▲ *Venice Family Clinic*

