

Community-Based Approaches to Prevention and Management of Hypertension and Cardiovascular Disease

Keith C. Ferdinand, MD;¹ Kellee P. Patterson, MD;² Cheryl Taylor, PhD, RN;³ Icilma V. Fergus, MD;⁴ Samar A. Nasser, PhD, MPH, PA-C;⁵ Daphne P. Ferdinand, PhD, RN⁶

From the Tulane University School of Medicine, New Orleans, LA;¹ Atlanta Vascular Research Foundation, Atlanta, GA;² the Southern University and A&M College School of Nursing, Baton Rouge, LA;³ the College of Physicians and Surgeons, Columbia University Medical Center;⁴ School of Medicine and Health Sciences, The George Washington University, Washington, DC;⁵ and the Healthy Heart Community Prevention Project, New Orleans, LA⁶

Community hypertension (HTN) outreach seeks to improve public health by identifying HTN and cardiovascular disease (CVD) risks. In the 1980s, the National Heart, Lung, and Blood Institute (NHLBI) funded multiple positive community studies. Additionally, the Centers for Disease Control and Prevention's (CDC's) Racial and Ethnic Approaches to Community Health (REACH) program addresses CVD risks. In 1978, in Baltimore, MD, the Association of Black Cardiologists (ABC), organized barbershops and churches as HTN control centers, as in New Orleans, LA, since 1993, the Healthy Heart Community Prevention Project (HHCPP).

Also, the NHLBI Community Health Workers and Promotores de Salud are beneficial. The American Society of Hypertension (ASH) Hypertension Community Outreach program provides free HTN and CVD screenings, digital BP monitors, multilingual and literacy-appropriate information, and videos. Contemporary major federal programs, such as the Million Hearts Initiative, are ongoing. Overall, the evidence-based Logic Model should enhance planning, implementation, and dissemination. *J Clin Hypertens (Greenwich)*. 2012; 14:336–343. ©2012 Wiley Periodicals, Inc.

Cardiovascular disease (CVD) is the leading cause of mortality in both industrialized societies and the developing world, but is of particular concern in the United States, as it accounts for nearly 20% of health care costs and 30% of Medicare expenditures.¹ Related medical costs and productivity losses approach \$450 billion annually, and inflation-adjusted direct medical costs are projected to triple over the next 2 decades.² Each year, more than 2 million Americans have a myocardial infarction or stroke, with total mortality of more than 800,000, which includes the largest contributor of lower life expectancy among blacks.

Hypertension (HTN) is the leading cause of CVD, which accounts for the majority (66%) of US deaths, along with several other major risk factors such as smoking, obesity, and elevated cholesterol. The public health approach to HTN not only potentially diminishes hypertension-related morbidity and mortality, but also curtails health care costs. For instance, reducing average population sodium intake to 2300 mg/d could save \$18 billion in health care costs annually, and a 5% reduction in the prevalence of HTN would save \$25 billion in 5 years.¹

Therefore, public health HTN interventions offer the promise of decreasing CVD across various populations at risk, particularly in the underserved and disad-

vantaged communities, which are disproportionately burdened by HTN and its effects. Social determinants of health can be addressed through organizations (governmental, private, or nonprofit) by educating and encouraging people about lifestyle modifications, such as regular physical activity, eating healthy foods, and utilizing preventive health services.

Community HTN programs aim to achieve widespread behavioral change and risk reduction by identifying HTN and unrecognized CVD risk factors. Cardiovascular (CV) outreach efforts have been increasingly implemented during the past 40 years, but despite their continued promulgation, the clinical evidence supporting their efficacy is limited. Evidence for community programs is essential to avoid unrealistic promises of CVD risk and disease reduction and waste of scarce financial resources. Furthermore, there is concern for the development of a health-disparities industry in which stakeholders, including health researchers, consultants, authors, policy makers, and others, may profit with minimal or only modest demonstrable outcomes.³

This paper highlights various CVD risk and hypertension-related community outreach programs, from peer-review reports, widely respected Web sites, and the primary author's own experience, based on participation or personal knowledge. Included are early research studies, individual efforts, nonprofit professional organizational initiatives, and recent major federal CVD prevention programs. This review especially focuses on programs specifically designed to target certain racial/ethnic minorities and socioeconomically disadvantaged persons, more likely to experience disparate CVD outcomes.

Address for correspondence: Keith C. Ferdinand, MD, FACC, FAHA, FASH Chair, American Society of Hypertension Community Outreach Program, Tulane Heart and Vascular Institute, Tulane University School of Medicine, 1430 Tulane Avenue, SL-48, New Orleans, LA 70112
E-mail: kferdinand@abcardio.org

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EVIDENCE-BASED RESEARCH IN COMMUNITY PROGRAMS FOR REDUCTION OF HYPERTENSION AND CVD RISK FACTORS

The evidence-based approach to health care is the optimal method to determine effective and efficient clinical practices. Therefore, documentation of the effectiveness of intervention methods in real-world settings is essential, including community-based research, with randomized trials or quasi-experimental studies. However, many of the earlier trials may not adequately serve as comprehensive models for minority communities in an increasingly diverse America.

NHLBI-Funded Research

In the 1980s, the National Heart, Lung, and Blood Institute (NHLBI) funded multiple community studies to document the effectiveness of various approaches to CVD risk reduction, including hypertension. Winkleby and colleagues,⁴ from the Stanford Center for Research in Disease Prevention, analyzed three community intervention programs including the Stanford Five-City Project, the Minnesota Heart Health Program, and the Pawtucket Heart Health Program (Table I). The conclusions from these studies increased the evidence and understanding of how to work with

various communities to promote CV health. These NHLBI-supported studies included work site initiatives on controlling overweight or obese employees by environmental interventions, changing cafeteria food offerings, and increasing time for physical activity, with overall trends in positive outcomes.

Additionally, a 2010 analysis pooled data from three major studies to clarify intervention effects with greater sample size and power than could be attained by the single studies.⁵ Time trends were estimated for reduction of multiple major CVD risk factors, including cigarette smoking, blood pressure (BP), total cholesterol, body mass index, and even coronary heart disease mortality risk in women and men aged 25 to 64 years. Although results of these programs were not statistically significant, they suggested potential benefits of community-based approaches to CVD morbidity and mortality while illustrating the challenges of evaluating community-based prevention. There is some evidence of a positive impact on lifestyle and obesity in the disadvantaged populations, including American Indian communities. For example, the Activity Counseling Trial (ACT) compared several patient education and counseling approaches⁶ and demonstrated practices that directly correlated with decreased CVD risk.⁷

TABLE I. Selected Cardiovascular Disease Risk and Hypertension-Related Community Outreach Programs

Name of Outreach Program or Policy Initiative	Type of Program
National Heart, Lung, and Blood Institute (NHLBI) • Stanford Center for Research in Disease Prevention: Stanford Five-City Project, the Minnesota Heart Health Program and the Pawtucket Heart Health Program • Activity Counseling Trial	Early community-based research studies
Center for Disease Control and Prevention (CDC) • The Racial and Ethnic Approaches to Community Health (REACH) program	Early community-based research and applied science
Healthy Heart Community Prevention Project (HHCPP)	Community-based effort
BARBER-1 of hypertension control	Community-based effort
NHLBI • Educational Campaign with Every Heartbeat Is Life • Community Health Workers, including Promotores de Salud • Health Education Awareness Research Team (HEART) trial	Federal community-based efforts and research
International Society of Hypertension in Blacks (ISHIB)	Non-profit professional organizational initiative
Association of Black Cardiologists (ABC)	Non-profit professional organizational initiative
American College of Cardiology (ACC)	Non-profit professional organizational initiative
American Heart Association, the American Stroke Association (AHA/ASA)	Non-profit professional organizational initiative
American Society of Hypertension (ASH)	Non-profit professional organizational initiative
Public Health Action Plan to Prevent Heart Disease and Stroke ("Action Plan") • The National Forum for Heart Disease and Stroke Prevention	Recent major federal and not-for-profit cardiovascular prevention program
Million Hearts Initiative	Recent major federal cardiovascular prevention program, including federal, state, and local. Nonprofit and business partners
Community Outreach and Cardiovascular Health (COACH) Trial	Community-based research study
Positive-Affect Intervention and Medication Adherence in Hypertensive African Americans Trial	Community-based research study

Also in 2010, Pennant and colleagues⁵ published a systematic review that assessed the effectiveness of community CVD prevention programs. They utilized numerous electronic databases, including the Cochrane Library, MEDLINE, and relevant Web sites from January 1970 to July 2008. Controlled studies of 36 relevant programs with multifaceted interventions employing media campaigns, screening, counseling, and environmental changes were included. The studies yielded positive results, but, overall, findings were statistically nonsignificant. Nevertheless, the investigators reported moderate changes in CVD/total mortality rates in 7 studies, significant changes in 5 studies, and a positive trend in the calculated CVD risk score in 22 studies, and thus concluded that community programs for CVD prevention have achieved favorable results and merit consideration for preventing CVD.⁸

Moreover, Villablanca and colleagues⁹ reported outcomes from national CV prevention programs for high-risk women. A longitudinal cohort of high-risk (older than 40, ethnic minority) women showed benefit in HTN awareness and control, using an educational intervention of 8 biweekly counseling sessions over 4 months. In 423 women, both medically trained personnel and lay individuals used screenings, counseling, and behavior modification, with a 10% ($P < .05$) increase in HTN control (BP $< 140/90$ mm Hg) and reduction in mean BP. However, there were several study limitations, including high dropout rate, significant time demands on site coordinators, limited resources, lack of morbidity and mortality end points, and failure to attain the primary outcomes of weight loss and physical activity.

CDC: The Racial and Ethnic Approaches to Community Health Program

The Centers for Disease Control and Prevention's (CDC's) efforts to eliminate US racial and ethnic health disparities gave birth to the Racial and Ethnic Approaches to Community Health (REACH) program in 1999. REACH partners employed and evaluated successful practice-based and evidence-based approaches to help identify, develop, and disseminate effective strategies for addressing health disparities across a wide range of health priority areas, including CVD risk. Accordingly, REACH serves African American/black, American Indian/Alaskan Native, Asian, Hispanic/Latino, and Native Hawaiian/other Pacific Islanders. Evidence from one REACH program noted that the proportion of American Indians who began to take medication to manage HTN increased from 67% in 2001 to 74% in 2004, surpassing the national rate for American Indians.¹⁰ In New Orleans, LA, REACH 2010 and the New Orleans Coalition Black Women's Health Imperative worked closely with local religious communities and lay health workers to change dietary habits and increase health literacy,¹¹ effectively increasing knowledge and awareness of CVD prevention.

EARLY LANDMARK COMMUNITY-BASED OUTREACH PROGRAMS

Baltimore, MD, and New Orleans, LA: Pioneers in Hypertension Outreach and CVD Risk Reduction

Low educational attainment, decreased literacy, and lack of identifiable sources of primary and CV care contribute significantly to increased CVD and disparities. Especially in the Southeastern region, these disparities include more prevalent and severe HTN, increased coronary heart disease deaths, fatal and nonfatal stroke, and overall CV mortality in blacks compared with non-Hispanic whites.

In 1978, as one of the first documented community health promotion programs, in Baltimore, MD, the Association of Black Cardiologists (ABC), under the leadership of Elijah Saunders and B. Wayne Kong, organized barbershops and churches as HTN control centers.¹¹ Subsequently, inspired by the earlier efforts of Saunders and Kong, the lead author and Daphne Ferdinand, a registered nurse, then administrator of Heartbeats Life Center, a private CV practice in the New Orleans, LA Ninth Ward, also used barbershops and beauty salons as BP screening and control sites.

Since 1993, this Healthy Heart Community Prevention Project (HHCPP) targeted CV risk identification and modification, especially in African Americans, and is described in detail herein as a model for a multifaceted approach to community outreach. This landmark outreach program was initially a 1-year pilot program funded by the NHLBI via the National Medical Association's Healthy People 2000 Program. Likewise, as in Baltimore, the second HHCPP component, "Give God a Hand," offered health education in various churches and religious sites throughout the city and the ministers and religious leaders delivered "healthy heart sermons." The New Orleans program was especially successful in a third component; BP, glucose, and cholesterol screenings were conducted in a setting where volunteers served thousands of individuals at the Bayou Classic football game. In addition, the HHCPP offered educational seminars by HTN specialists to a broad cross-section of health professionals, including physicians, nurses, and nutritionists.¹² This project's strong ties with the local community were an important aspect of a successful community outreach program and a strong coalition of local organizations to sustain massive CV health screenings and education.

From its inception, the HHCPP "Cut Your Pressure" barbershop/beauty shop intervention taught beauticians and barbers how to determine BPs in a standardized manner.¹³ The HHCPP recognized black-owned barbershops as a cultural institution with a loyal male clientele. Although black churches are often effective community partners for CV outreach, regular church attendance is less common among black men. Thus, HHCPP was a major early adopter of popular secular sites such as sporting events and barbershops for HTN outreach to at-risk men.

The volunteers were required to pass a written test on various NHLBI recommendations and accurately determine BPs to qualify as “specialists.” The selected barbershops and beauty salons were often little more than one-room shops in disadvantaged neighborhoods in New Orleans—places where no one else desired to screen and educate in the past.

The HHCPP component of professional education included clinical presentations and training on national HTN and cholesterol guidelines.¹² The HHCPP offered educational seminars by HTN specialists to a broad cross-section of health professionals, including physicians, nurses, and nutritionists.¹² A Blood Pressure Control Referral Directory, a list of physicians and clinics to provide follow-up care to screened patients, was designed to avoid the pitfall of simply going into a disadvantaged community, taking BPs, and leaving without follow-up. Since the widespread devastation of Hurricane Katrina in August 2005, the HHCPP has continued a 2-decades-old cable program and also focused on Web-based education.¹⁴

Recent Ongoing Barber-Based Interventions for Improving Hypertension Control in Black Men

A recent applied research study provided evidence for the benefits of barber-shop interventions. The age-adjusted hypertension-related death rate is 3 times higher among black men than white men, with BP remaining above recommended levels in approximately 60% of the 4.4 million adult black men with HTN. Moreover, black men have less frequent physician contact for preventive care than women, thus substantially lowering rates of HTN detection, medical treatment, and health maintenance. Therefore, the CDC has encouraged novel HTN outreach programs with community partners and intervention messages targeting black men.¹⁵

Victor and colleagues in Dallas, TX,¹⁵ used barbers to motivate male patrons with elevated BP to pursue physician follow-up and care, improving HTN control. This cluster, randomized trial (BARBER-1) of HTN control included black male patrons of 17 black-owned barbershops in Dallas County, TX (March 2006 to December 2008). There was a 10-week baseline BP screening, and then study sites were randomized to receive standard BP pamphlets (8 shops, 77 hypertensive patrons per shop) or an intervention group in which barbers continually offered BP checks with haircuts and promoted physician follow-up, with sex-specific peer-based health messaging (9 shops, 75 hypertensive patrons per shop). After 10 months, the HTN control rate increased more in intervention barbershops than in comparison facilities (absolute group difference, 8.8%; $P=.04$). There was a marginal intervention effect found for systolic BP change (absolute group difference, -2.5 mm Hg; $P=.08$). The researchers concluded that HTN control was improved when barbers were empowered to be health educators, monitor BP, and promote medical care.

Similarly, a large community outreach with black barbershops (<http://blackbarbershop.org>) has been ongoing since its inception in 2007. This program has reportedly screened more than 30,000 men in over 500 barbershops in 38 cities with a goal to screen more than 500,000 men by the year 2014. Bill J. Releford, a podiatric surgeon practicing in the predominately African American community in Los Angeles, CA, founded the Black Barbershop Health Outreach Program (BBHOP). It was launched out of the need to address health care disparities among African Americans and serves as an effective method for community health promotion.¹⁶

Community Health Workers and Promotores de Salud: Established Pathway to Positive Hypertension Education and Outreach

The NHLBI has a long history of supporting multiple approaches to public CV health education. Detailed monographs have been developed to assist individuals and groups interested in community programs, including manuals for screening at sporting events and for church-based programs, and multiple racial/ethnic appropriate comprehensive materials for lay education.

In support of the widening use of lay health workers to screen, educate, and motivate the public, the NHLBI developed an extensive curriculum and evidenced-based syllabus for community health educators. The syllabus, “Educational Campaign with Every Heartbeat is Life,” is a science-based 12-lesson course on heart health education targeting the African American community. This detailed, comprehensive program includes activities, group idea starters, and reproducible handouts, available as a ready-to-assemble 1.5-inch binder, with dividers for each section.¹⁷

Community health workers (CHWs) are paid public health workers, as well as volunteer community members, who share ethnicity, language, socioeconomic status, and life experiences with the people they serve. In Hispanic communities, CHWs are known as Promotores de Salud. Culture greatly affects health understanding and adherence to treatment, and as part of the community, CHWs are trusted and form a remarkably close bond with members of the community. They also serve as a liaison between health and social services and the community, facilitating access to and enrollment in health services.¹⁸ The Health Education Awareness Research Team (HEART) trial demonstrated in 328 high-risk Hispanics that using Promotores is a viable strategy for CVD risk reduction in high-risk Latino populations.¹⁹

In 2011, the Health and Human Services (HHS) released its Action Plan to Reduce Racial and Ethnic Health Disparities and proposed a new initiative to increase the use of Promotores in health education, prevention, and health insurance programs and promote the use of community health workers by Medicare beneficiaries.²⁰

PROFESSIONAL MEDICAL ASSOCIATIONS AND HYPERTENSION OUTREACH

International Society of Hypertension in Blacks

In 1986, propelled by disproportionate rates of HTN among blacks, Dallas Hall, Neil Shulman, Elijah Saunders, and others established the International Society of Hypertension in Blacks, Inc (ISHIB). Since its early years, clinicians and researchers from around the United States sought ways to better identify and curtail the high rates of HTN and associated CVD disease in blacks in America and in other nations. In one of its first major efforts, ISHIB held a major conference in Nairobi, Kenya, and ISHIB members took their knowledge of ways to maintain CV health to local communities by visiting villages and working with local Kenyan health care professionals. Subsequent community outreach was completed in Brazil, the US Virgin Islands, Cameroon, England, and multiple major black communities in the United States. The ISHIB program also pioneered using worship sites as health education locations, and their efforts included community leaders' health forums on risk assessments.²¹ It has now developed into a comprehensive campaign, known as IMPACT, designed to apply the recommendations of recent ISHIB working group reports into a community-based research model.

Association of Black Cardiologists

The ABC was founded in 1974 by Richard Allen Williams and 16 cardiologists to bring special attention to the adverse impact of CVD on African Americans. The ABC's pioneering community health promotion programs have been extensive, including organizing churches as high BP control centers and most recently, holding Super Weekends and Spirit of the Hearts Programs. These major programs have impacted more than 2000 people in multiple cities, merging community-wide screening with education of local social and political leaders, along with faith-based initiatives.²²

During the past several years, the ABC has promulgated Community Health Advocates in programs designed to educate lay individuals and ensure that health personnel are educated to perform outreach services via the previously described, validated NHLBI syllabus. They are empowered to determine BPs, distribute health education materials, and give basic information to community members and faith-based and civic organizations and their members.²³

American Heart Association and the American Stroke Association

To address the needs of specific segments of at-risk populations, the American Heart Association (AHA) and the American Stroke Association (ASA) have developed cause-based initiatives. Despite the black community's high rate of stroke disability and death, an ASA survey found that many blacks do not believe stroke will happen to them and have limited knowl-

edge of stroke risk factors, signs, and symptoms. Accordingly, the ASA launched its Power to End Stroke campaign in 2006, targeted to blacks. The Stroke Ambassadors program is a model of how community leaders can connect in a highly effective manner with the public in support of disease prevention.²⁰

Before their deaths, Yolanda King, daughter of Martin Luther King, Jr, and Coretta Scott King, his wife, served as lead ambassadors for the Power to End Stroke campaign.²⁴ As of 2010, more than 400,000 individuals have joined Power to End Stroke. Cumulatively, including its multiple other community efforts, the AHA estimate that millions of people have been reached.²³

The American College of Cardiology

The American College of Cardiology (ACC) has developed CardioSmart (<http://www.CardioSmart.org>), an initiative to address patient communication, education, and engagement. It was launched at the ACC.08 Annual Meeting.²⁵ The purpose of this effort is to provide comprehensive, thorough, and authoritative informational and educational resources as well as interactive management and compliance tools for heart disease patients and their families.

Furthermore, beyond the Web site, CardioSmart is the term for ACC's patient-centered activities, encompassing a number of patient outreach efforts: community events, Web-based education, tracking modules, and discounts for heart-healthy products. Key metrics are physician/practice adoption, patient enrollment rates, and sustainability in terms of patients' willingness to track their BP for an extended period.

American Society of Hypertension

The American Society of Hypertension (ASH) Hypertension Community Outreach program provides free hypertension and cardiac risk factor screening for BP, glucose, and cholesterol (Table II). As an adjunct to ASH Scientific Meetings in New Orleans (2008), San Francisco (2009), and New York City (2010), the Fourth Annual Hypertension Community Outreach program (2011) was the most extensive to date. Initiated by the ASH board and with the author as Chair, the program was initially a major national effort in post-Katrina New Orleans. The overall goal is to encourage residents in multiple and diverse communities to take control of their CV health, distributing hundreds of free home BP monitors, multilingual, and literacy-appropriate and evidence-based patient information brochures.

The primary brochure, "Blood Pressure and Your Health," has been recently recognized by the Health Literacy Innovators Award program. ASH Outreach recognized that Spanish-speaking patients (and potentially other non-English-speaking and low-literacy English-speaking individuals) can better understand and adhere to therapies, comprehend instructions on medications, and utilize information about side effects,

TABLE II. Major Components for American Society of Hypertension Community Outreach Program

Hypertension and cardiac risk factor screening: blood pressure (BP), glucose, and cholesterol
Health screening/education to various community settings (eg, staff at New York Hilton Hotel)
Distribution of free home BP monitors, pedometers, BP chart cards, and educational booklets
Educating lay volunteers on how to take BP with digital BP monitors
Provide multilingual and literacy-appropriate patient information brochures: <i>Blood Pressure and Your Health</i>
Collaboration with experienced outreach partners (eg, Association of Black Cardiologists, American Kidney Foundation)
International travel to underserved medically isolated region: <i>Blood Pressure Without Borders</i>

increasing satisfaction with their health care. ASH took care to use only validated translation into easy-to-understand Spanish, with plans to expand to Chinese and other languages.

In order to broaden and increase the effectiveness of its outreach efforts, ASH has collaborated with several well-recognized and experienced partners, such as the ABC, the Foundation of the National Lipid Association, and the American Kidney Fund. The BP monitors were donated without any restriction by device companies, and assistance from multiple pharmaceutical and food industry supporters had no input on the messages or the nature of the outreach activities. Other community partners include hotel corporations and local tourist/visitor associations. During and after the May 2011 annual meeting, a large electronic message board in Manhattan's Times Square stimulated thousands of viewers to check their BPs.

For the second straight year, in 2011, screenings and health education were provided for employees at the New York Hilton Hotel & Towers, site of the Annual ASH Scientific Meetings. Approximately 400 housekeepers, security guards, bellmen, housemen, chefs, electricians, front desk agents, and others participated and were given a sphygmomanometer, a pedometer, a *Blood Pressure and Your Health* booklet, a BP chart card, an ASH t-shirt, and a refrigerator magnet. Hotel management, through local union representatives, considered these efforts beneficial to the staff.

In 2011, as an innovative ASH effort, Icilma Fergus, an ASH Committee member and Gilda Caputo-Hansen, ASH Director of Outreach, travelled to the Island of Montserrat, an underserved, medically isolated Caribbean island for "Blood Pressure Without Borders." The ASH team served approximately 200 people, taking BPs and teaching lay volunteers how to use the digital BP monitors. The ASH effort was encouraged by the Minister of Health and other government officials. In response to limited CV health care, a portable echocardiograph was used to image patients, and the ASH contributions, in addition to labor and education, included distributing 50 home monitors. A startling high prevalence of elevated BP for a Caribbean Island potentially was related to post-traumatic stress from the disastrous eruption of a now indolent volcano. Aggregate data from the entire cohort showed that 61% of men and 41% of women had BP

>140/90 mm Hg, while 25% of men and 28% of women were diabetic.

MAJOR NONPROFIT AND FEDERAL CV PREVENTION INITIATIVES

The public health approach to hypertension identification and control, as endorsed by a recent Institute of Medicine (IOM) report,²⁶ is the optimal means to curtail the impact of an increasingly overweight/obese and aging population. Traditional office BP management alone is suboptimal and home BP monitoring (HBPM) will be increasingly utilized, with devices widely available, accurate, reliable, easy to use, and relatively inexpensive. In the future, as already recently recommended in Europe, 24-hour ambulatory BP may be endorsed by US guidelines as best predictor of CV risk, eliminating the white-coat effect and better correlating with target organ damage.²⁷

In 2003, a Public Health Action Plan to Prevent Heart Disease and Stroke ("Action Plan") was the basis for founding The National Forum (NF) for Heart Disease and Stroke Prevention. The Action Plan's chief goal is to bring together organizations committed to heart disease and stroke prevention.²⁸ The NF, an independent 501c3, supports a comprehensive public health approach to surveillance, sodium reduction, and health equity, involving more than 65 national organizations representing federal, public and private, health care, advocacy, academic, policy, and community groups.

In 2011, the US Surgeon General as Chair of the National Prevention, Health Promotion, and Public Health Council, released the National Prevention and Health Promotion Strategy. This report is a critical component of the Affordable Care Act (ACA), the landmark health legislation passed in 2010. It proposes to become a pathway to a healthier and fit nation and is concerned with a wide range of health concerns including CV health, promoting health and wellness through prevention, supporting people in making healthy choices, and eliminating disparities by improving the quality of life for all Americans.²⁹ Additionally, the ACA addresses CVD prevention via the Patient-Centered Outcomes Research Institute (PCORI), designed to conduct research and help patients and their health care providers make more informed decisions for prevention, treatment, and care.³⁰

Additionally, the national health objectives in Healthy People 2020 builds on 3 decades of benchmarks, monitored progress, and data and tools to enable states, cities, communities, and individuals to combine their efforts to make informed health decisions and measure the impact of prevention activities.³¹

Moreover, with the 2011 Community Transformation Grants, approximately \$103 million in prevention funding has been awarded to 61 states and communities, serving approximately 120 million Americans.³² Communities will implement effective prevention strategies to reduce chronic diseases by promoting healthy lifestyles, especially among populations experiencing the greatest burden of chronic disease, potentially reducing health disparities, and lowering health care costs.³⁰

Finally, in an ambitious, bold effort to reduce major disability, death, and costs of CVD, the Department of Health and Human Services (DHHS), other federal, state, and local government agencies, and a broad range of private-sector partners recently launched the “Million Hearts” initiative.³³ The goal of this program is to prevent 1 million heart attacks and strokes over the next 5 years by implementing proven, effective, and inexpensive interventions. The Million Hearts effort supports community-based prevention to facilitate healthy choices.

Limitations in Past Efforts of Community Outreach and Two Recent Research Models for Future Success

Previous efforts for community CV outreach programs, while well intended, have not consistently demonstrated effectiveness in actually increasing control of CV risk factors, including hypertension and, more importantly, decreasing morbidity and mortality in the populations served. In view of increasing restrictions in health care funding, it is important going forward that various community outreach programs are designed and implemented based on rigorous scientific evidence.

Two recent peer-reviewed reports of CV risk reduction may serve as models for best practices in community programs in the future.

First of all, the Community Outreach and Cardiovascular Health (COACH) trial was a randomized controlled study confirming the benefit of nurse practitioners/community health workers in decreasing CV risk in urban community health centers.³⁴ This randomized controlled clinical trial of 525 patients with known CVD, type 2 diabetes, hypercholesterolemia, or hypertension demonstrated that stringent pharmacologic intervention and lifestyle modification counseling minimized noncompliance, specifically as related to hypertension, compared with enhanced usual care; patients in the nonprofit/CHW group had significant improvement in both systolic BP (difference 6.2 mm Hg) and diastolic BP (difference 3.1 mm Hg)

with improved perception of the quality of their chronic illness care.

A second recently reported randomized control trial documented the benefit of positive-affect intervention and medication adherence in hypertensive African Americans.³⁵ In 256 hypertensive African American patients, enhanced positive affect (PA) with patient education (PE), including small gifts and bimonthly telephone calls, showed a significant reduction in BP compared with usual counseling. At the end of 12 months, adherence was higher with PA compared with PE (42% vs 36%) and greater reduction in systolic (2.14 vs 2.18 mm Hg; $P=.98$) and diastolic (-1.59 vs -0.78 mm Hg; $P=.45$) BP.

In the future, community outreach efforts should be based on evidence-based approaches such as the Logic Model, a collaborative effort first developed by the Kellogg Foundation, which will effectively guide initiation and completion in an outcome-oriented approach.³⁶ The Logic Model is a tool that enhances program planning, implementation, and dissemination of activities. Utilizing this approach, there will be effective understanding of the purposes, outcome, and long-term impact of any activity and will avoid the often unnecessary utilization of human resources and finances in a continually restricted health care economic environment. Major grants in the future for community outreach will demand that work is planned with activities that have specific outputs and outcomes and long-term impact, which is fundamental to document intended and unintended changes occurring within communities as a result of any specific programs. The clear approach of the Logic Model is critical to the overall success of programs in the future and will enhance the benefit of multiple approaches.

CONCLUSIONS

Investments in effective prevention strategies provide the best opportunity to improve the health of Americans and control health care spending. Multiple community programs have been successful, to varying degrees, in identifying and educating individuals at risk. Although not easily measurable, community-based hypertension programs may have contributed, in some way, to a reduction in myocardial infarction and stroke over the past few decades. Without evidence for community programs, negative and positive, the unintended consequence will be increased costs and wasted resources in terms of personnel time and effort; however, programs that are beneficial and reproducible should be used as tools or models for ongoing efforts at outreach and adapted for more widespread use. In the final analysis, community education and outreach supplements standard therapy for hypertension and CVD risk. Future research and more work needs to be done, along with continued funding for present evidence-based efforts, as an essential contribution to CVD prevention.

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