American Heart Association Guide for Improving Cardiovascular Health at the Community Level

A Statement for Public Health Practitioners, Healthcare Providers, and Health Policy Makers From the American Heart Association Expert Panel on Population and Prevention Science

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This Guide for Improving Cardiovascular Health at the Community Level (Community Guide) is intended to provide persons and organizations interested in improving the cardiovascular health of their communities with a comprehensive list of goals, strategies, and recommendations that might be implemented on a community-wide basis. It targets not only health professionals but also public health practitioners, voluntary health agencies, and community leaders in general.

The Community Guide will complement the American Heart Association (AHA) Guidelines for Primary Prevention of Cardiovascular Disease and Stroke,[1] the American Stroke Association Scientific Statement on the Primary Prevention of Ischemic Stroke,[2] AHA/American College of Cardiology (ACC) Guidelines for Preventing Heart Attack and Death in Patients with Atherosclerotic Cardiovascular Disease,[3] and the Guidelines for Preventing Ischemic Stroke in Patients with Prior Stroke and Transient Ischemic Attack.[4] This Guide differs from these four clinical guidelines because it provides a comprehensive approach to reducing the burden of cardiovascular disease (CVD) through improving the local policies and environment as a means to promote cardiovascular health. Changes toward a healthier environment could be expected to enhance the clinically oriented guidelines because both the primary and secondary prevention guidelines recommend that healthcare providers encourage behavior change in individual patients. Improvements in facilities and resources in the places where people work and live should enhance the achievement of many goals, including: cessation of tobacco use and avoidance of environmental tobacco smoke; reduction in dietary saturated fat, cholesterol, sodium, and calories; increased plant-based food intake; increased physical activity; access to preventive healthcare services; and early recognition of symptoms of heart attack and stroke. Healthcare providers and their patients have better opportunities for successfully implementing the clinical guidelines when they live in such communities.

Although complementary to and supportive of the clinical guidelines, the Community Guide provides a fundamentally different strategy for the prevention of heart disease and stroke. It uses the population-based or public health approach to risk factor modification, in which the entire distribution of risk factors and risk is shifted toward lower levels through population-wide interventions.[5] This is contrasted with the high-risk approach, as carried out in clinical settings, in which individuals' risk levels are assessed and those at highest risk are treated intensively. The heart and stroke Primary Prevention Guidelines[1,2] and Secondary Prevention Guidelines[3,4] address the high-risk approach. A worthy goal is to prevent the onset of risk factors in the first place, referred to as "primordial prevention" or health promotion. This strategy has the potential not only to prevent the first heart attack or stroke in the person at average risk (a population in which large numbers of CVD deaths still occur) but also to avoid the need for intensive and expensive pharmacotherapies to control risk factors such as hypertension, hyperlipidemia, and diabetes, once they become established. The high-risk and the public health strategies mutually enhance each other; the effectiveness of one is compromised when the other is not fully realized as well.

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The Community Guide emphasizes the social and environmental origins of the CVD epidemic.[6] Evidence from epidemiological investigations, interpopulation studies, secular trends, and community interventions provide a compelling rationale for attacking the cardiovascular epidemic at the community level.[7] Deleterious lifestyles and behaviors, rather than medical conditions or genetic predispositions, are thought to be the most important and most modifiable causes of the majority of deaths from heart disease and stroke.[8] Long-term prospective epidemiological studies have shown consistently that persons with healthy lifestyles and few risk factors have low risk of heart disease and stroke throughout their lifespans.[9,10] The Nurses' Health Study, for example, has demonstrated that women who maintain a desirable body weight, eat a healthy diet, exercise regularly, do not smoke, and consume a moderate amount of alcohol have an 84% reduction in their risk of CVD[11]! These data suggest that the causes of the vast majority of cases of heart disease and stroke have been identified and can be attributed to a few deleterious behaviors and lifestyles.

Comparisons of populations even within the United States point to the extraordinary range of risk to which *populations* are exposed. For example, the age-adjusted death rates from heart disease for men in the state with the highest rate (Mississippi, 878 per 100 000) is nearly twice that of those in the states with the lowest rate (Hawaii, 482 per 100 000; Utah, 492 per 100 000).[12] At the county level, the range of heart disease mortality rates was even wider (377 to 1102 deaths per 100 000). These huge differences between populations persist for men and women and for racial and ethnic subgroups.[13] Behavioral and cultural differences are more likely explanations for these differences than are genetic or clinical factors.

Secular trends also point to behavioral and social factors as explanations for the decline in heart disease mortality rates in the United States. Goldman and Cook examined the contributions of lifestyle changes versus medical interventions as explanations of the CVD mortality decline between 1968 and 1978.[14] These authors attributed 39.5% of the decline to medical interventions such as coronary care units and emergency cardiac care, bypass surgery, postcoronary medical therapies, and antihypertensive drugs, as compared with 54% of the decline explained by reductions in smoking and serum cholesterol levels (largely due to dietary change), following public education campaigns by voluntary health organizations such as the AHA. Thus, a population-wide behavioral strategy is a worthy partner to complement clinical strategies.

Finally, a sizable research base exists that provides the empiric evidence that interventions at the community level can change community-wide behaviors.[15] More than three decades' worth of community prevention trials in the United States and abroad support the notion that concerted efforts to organize communities, educate them through mass and direct education, provide screenings for risk factors, and change their environments through local programs and policies can change behaviors.[16,17] Additional research has identified schools,[18] work sites, religious organizations,[19] and healthcare facilities[20] as sites to facilitate community-wide behavior change.

The international scientific community has interpreted this evidence base as proof that CVD is largely preventable and that population-wide interventions are needed to further reduce the cardiovascular epidemic in developed countries and to prevent the onset of such an epidemic in developing countries. This coincides with the growing recognition that successful health promotion in the United States will require leadership to teach and motivate, economic resources, and further research to inform policy, if the focus is to swing from treatment of symptomatic disease to prevention of disease.[21] The International Heart Health Network has provided a policy framework for such population approaches, calling on governmental agencies, the private sector, voluntary health organizations, employers, and healthcare providers to "join forces in eliminating this modern epidemic by adopting new policies, making regulatory changes, and implementing health promotion and disease prevention programs directed at entire populations."[22] This has led to a series of declarations that describe this policy framework. The Victoria Declaration[22] in 1992 described the magnitude of the cardiovascular epidemic and its eminent preventability. The Catalonia Declaration[23] in 1995 provided examples of the feasibility and effectiveness of heart disease prevention programs from around the world. The Singapore Declaration[24] in 1998 discussed the capacity needed for heart disease prevention programs, including both technical and political capacities. The Victoria Declaration on Women, Heart Disease, and Stroke[25] in 2000 recognized the magnitude of the global CVD epidemic in women and discussed important sex-specific dimensions of the disease. Finally, in 2001, the Osaka Declaration[26] reviewed economic and political factors that have served as barriers to improving cardiovascular health in many countries. Together, these declarations form a compendium of practical strategies for implementation at the international, national, and community levels.

The Community Guide is organized around three dimensions: (1) the behaviors targeted for change; (2) the community settings in which interventions might be implemented; and (3) the interventions themselves (Figure). The behaviors targeted included diets high in saturated fat, cholesterol, salt, and calories and low in plant-based foods; sedentary lifestyle characterized by less than 30 minutes of moderate-intensity physical activity per day; tobacco use or exposure to environmental tobacco smoke; lack of screening, counseling, and treatment for prevention and treatment of hyperlipidemia, hypertension, and other risk factors; and the lack of early recognition of symptoms of heart attack and stroke, which delays or precludes early care. The community settings may include entire communities but also could include organizations in which segments of the population live or work, such as schools, work sites, religious organizations, or healthcare facilities. Often, it is difficult to access all persons in a community without using several community settings. Finally, the interventions are grouped according to "essential public health functions" as described for public health agencies.[27] These describe activities at the community level necessary to promote population-wide health. This includes determination of the community's CVD burden (ie, assessment) to increase community awareness and to target further

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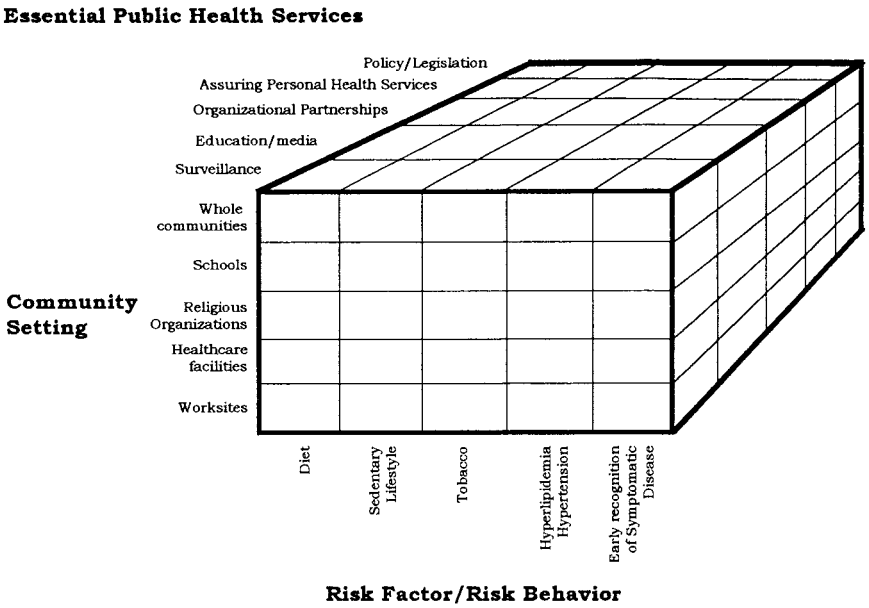

A conceptual framework for public health practice in CVD prevention. Reproduced with permission from Pearson et al.[17]

interventions. Education at the individual level or with mass media campaigns communicates the burden, causes, and corrective steps that can be taken to reduce cardiovascular risk. Community organizations are important partners in consortia that can be mobilized for media campaigns, resource development, environmental changes, or legislative and political activities. Access to essential personal healthcare services should include screening for risk factors such as hypertension and hyperlipidemia, the early recognition of clinical disease, and the availability of emergency services for acute coronary and stroke care. Legislative action is frequently necessary to assure protection from deleterious exposures (eg, environmental tobacco smoke) or to provide resources for public health campaigns, clinical services, or rehabilitation.

The Community Guide is organized as a table similar to the clinical guidelines, with interventions tied to measurable goals at the community level (Table). The recommendations then suggest specific actions that should facilitate reaching the goals. Two features of the Guide are recurrently emphasized. First, the goal is to promote *lifestyle* and *behavior* change at the individual and community levels and *policy* change at the community level. Although clinical guidelines identify goals for risk factors such as levels of desirable blood pressure or blood cholesterol, the Community Guide's goals are related to behaviors of the inhabitants of the community that affect these risk factors. Second, whenever possible, the strategies should employ methods and materials that are research based and well evaluated. Although this research base is fundamentally different from that of randomized trials of clinical interventions, it nonetheless comprises a rich evidence base for public health practice.[15]

This Guide is meant to integrate other guidelines and plans developed to improve preventive services in the community. Of particular note are the evidence-based recommendations from the Task Force on Community Preventive Services, sponsored by the Centers for Disease Control and Prevention.[28] These recommendations focus on single health behaviors at the community level, such as physical activity[29,30] and tobacco control,[31,32] and make recommendations to practitioners responsible for the health of populations. Recommendations on other health behaviors will be forthcoming. The Community Guide seeks to integrate these recommendations of individual risk behaviors into a comprehensive approach toward community-based prevention of heart disease and stroke. For example, the Task Force on Community Preventive Services recommendations to increase physical activity give a "recommend" or "strongly recommend" endorsement, based on evidence, for: point-of-decision prompts (eg, reminders to take stairs), community-wide campaigns, school-based physical education, individually adapted health behavior change programs, and creation of or enhanced access to places for physical activity.[30] Similarly, the recommendations herein for smoking cessation are consistent with the Task Force on Community Preventive Services recommendations to reduce tobacco use, including smoking bans, increasing unit price for tobacco, mass media campaigns, reducing costs and increasing access to cessation services, and patient telephone support services.[31] The Community Guide endorses these recommendations as important parts of a comprehensive cardiovascular health promotion effort. It is also consistent with the National Action Plan for Cardiovascular Health being developed under the leadership of the Centers for Disease Control and Prevention.[33] This exciting initiative, for the first time at the federal government level in the United States, should be critical to the success of widespread implementation of the strategies aimed at population-wide control of heart disease and stroke.

Finally, the gap between current reality and the goals in the Table is large, presenting a challenge to the AHA, governmental agencies, the healthcare system, and community organizations. Two community-based studies in the United States, one in Worcester, Mass,[34] and another in Olmstead County, Minn,[35] suggest that the rates of *new* cases of heart disease have not fallen since 1990, and, for women, may have actually risen. The rate of stroke has not declined since 1990,

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Guide to Improving Cardiovascular Health at the Community Level

Strategies and Goals	Recommendations
Assessment	
Goal: All persons and communities should know that CVD and stroke are the leading causes of death and disability in men and women.	• Determine and make available data on the burden of CVD and stroke mortality at the local level (city or county). • Identify groups defined by sex, race/ethnicity, socioeconomic status, or geographic location that are at especially high risk of CVD and stroke within each community. • Assess the levels of major preventable causes of CVD and stroke in the community, including lifestyle behaviors (eg, adverse nutrition, cigarette smoking, sedentary lifestyle) and risk factors (hypertension, atrial fibrillation, diabetes, elevated blood cholesterol, and obesity).
Education	
General Health Education	
Goal: All communities should provide information to their members about the burden, causes, and early symptoms of CVD and stroke.	• Mass media (television, radio, newspapers) should disseminate results of surveillance about the burden of CVD and stroke in the community. • Mass media and local media (eg, pamphlets, brochures) should emphasize the importance of lifestyle behaviors and risk factors on cardiovascular health. • Public education campaigns should make the community aware of guidelines for primary and secondary prevention of CVD and stroke. • Mass and local media should emphasize the early warning signs of myocardial infarction and stroke. • Ongoing education programs should provide training of lay members in cardiopulmonary resuscitation. • All citizens should know how to access the emergency medical care system.
Goal: Communities should provide materials and programs to motivate and teach skills for changing risk behaviors that will target multiple population subgroups.	• A guide to community resources (services and programs) for prevention, diagnosis, and treatment of CVD and stroke should be available. • Communities should support and publicize research-based programs for CVD risk reduction that are targeted to key population subgroups, especially disadvantaged groups and people at all levels of readiness to change. • Communities should promote the use of web site programs for risk reduction by making web site access to such programs available in public libraries and schools. • Food advertising directed to youth should be limited to foods that meet health guidelines. • TV shows for children should promote physical activity during commercial breaks.
School and Youth Education	
Goal: All schools should have research-based, comprehensive, and age-appropriate curricula about cardiovascular health and ways to improve health behaviors and reduce CVD risk.	• School curricula should include lessons about risk factors for CVD and stroke and the extent of heart disease and stroke in the community. • Research-based curricula about effective methods of changing health behaviors should be implemented. • Students should learn skills needed to achieve regular practice of healthful behaviors, and parents should learn how to support their children's healthful behaviors.
Goal: All schools should implement age-appropriate curricula on changing dietary, physical activity, and smoking behaviors.	• Specific curricular materials for healthy nutrition and physical activity should be offered. • Physical education should be required at least three times a week in grades K-12, with an increasing emphasis on lifetime sports/activities. Implementation of research-based curricula is recommended. • Meals provided at schools should include alternatives conducive to cardiovascular health.
Goal: All schools should provide teaching of early warning signs of myocardial infarction and stroke and appropriate initial steps of emergency care.	• Students should know how to activate the emergency medical system. • Cardiopulmonary resuscitation instruction should be provided to students at appropriate ages.
Work Site Education	
Goal: All work sites should provide materials and services to motivate and assist employees to adopt and maintain heart-healthy behaviors.	• Work sites should promote increased physical activity in the day's work (eg, stair climbing). • Workers should have access to research-based effective materials and services to help them adopt and maintain heart-healthy behaviors.
Goal: All work sites should provide instruction in early warning signs of myocardial infarction and stroke and appropriate initial steps of emergency care.	• Workers should know how to activate the emergency medical system. • Cardiopulmonary resuscitation instruction should be available to all workers.
Healthcare Facility Education	
Goal: All healthcare facilities should make available research-based, effective educational materials and programs about changing and maintaining risk factors/risk behaviors, ways to prevent CVD and stroke, and early warning signs of CVD and stroke.	• Print and other media should be available in healthcare facilities to describe CVD and stroke risk factors and their early warning signs. • Guides for primary and secondary prevention should be made available for all patients. • Educational materials should be modified to accommodate for limited literacy, cultural and language diversity, sex differences, and dissemination flexibility.

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Continued

Strategies and Goals	Recommendations
Community Organization and Partnering	
Goal: All communities will have an action plan for CVD and stroke prevention and control with specific targets and goals.	• Identify organizations and institutions in the community that can provide services and resources in prevention and care of CVD and stroke. • Create opportunities for citizens of all ages to become involved in community activities for CVD and stroke prevention.
Goal: All communities will provide materials and services for risk behavior and risk factor change that are research based whenever possible.	• Educate community organizations about effective research-based materials and services and make these available.
Assuring Personal Health Services	
Goal: Increase the percentage of people at risk who will effectively reduce risk factors to goal levels as established by AHA Guidelines for Primary and Secondary Prevention of heart disease and stroke	• Assure access to screening, counseling, and referral services for CVD and stroke risk factors for all persons. • Modify educational materials to accommodate for limited literacy and for culture and language diversity. • Provide tobacco users with telephone support interventions, including cessation counseling or assistance in attempting to quit or in maintaining abstinence. • Provide access to rehabilitation and risk factor control programs for CVD and stroke survivors.
Goal: Increase the percentage of patients suffering acute coronary syndromes (eg, myocardial infarction, cardiac arrhythmias) or cerebrovascular syndromes (eg, stroke, transient ischemic attack) who receive appropriate acute interventions within the timeframe of maximal effectiveness.	• Train emergency first responders in the use of automatic defibrillators (AEDs) and provide them with AEDs in accordance with AHA-recommended guidelines. • Equip high-density public locations and locations in which high-risk activities take place with AEDs, and have personnel trained in the use of AEDs, in accordance with AHA-recommended guidelines.
Goal: Provide training about smoking, physical activity, nutrition, and effective behavior change counseling methods in medical schools and appropriate residency programs.	• Require research-based curricula for the MD, nurse practitioner, PA, and RN degrees emphasizing skill building in behavior change related to smoking, diet, and exercise.
Environmental Change	
Goal: Assure access to healthy foods so that all members of the community can meet national dietary recommendations for saturated fat (<10% of calories), sodium, grains (>6 day, with>3 being whole grain), fruits (>2 servings/day) and vegetables (>3 servings/day)	• Grocery stores and food markets should provide selections of fruits, green and yellow vegetables, and grain products at reasonable costs. • Restaurants should increase offerings of and identify dishes that meet nutritional guidelines and provide nutritional labeling. • Schools should increase the access to and identify meals and snacks that contribute to better overall dietary quality and meet dietary guidelines. • Food services at work sites should identify and make available selections low in saturated fat and calories with expanded access to fruits, vegetables, and grain products. • Healthful foods should be promoted at all food sources by methods such as point-of-purchase displays. • Communities should support farmer's markets and community gardens.
Goal: Assure access to safe, appropriate, and enjoyable forms of physical activity so that people of all ages can meet national guidelines for moderate and vigorous physical activity.	• Physical education programs should be supported within the school curricula and within community activity centers. • Every community should commit to providing safe and convenient means for walking and bicycling as a means of transportation and recreation. • Buildings should be designed so that stairwells are visible, convenient, and comfortable to use. Use of stairwells should be promoted through signs. • Work sites should provide employer-sponsored physical activity and fitness programs. • Schools should provide access to their physical activity space and facilities for all persons outside of normal school hours.
Goal: Assure a tobacco-free environment for all citizens.	• Work sites should have formal smoking policies that prohibit smoking or limit it to a separately ventilated area. • Local or state ordinances should prohibit smoking in public places or limit it to separately ventilated areas. • School facilities, property, vehicles, and school events should be smoke-free and tobacco-free.
Policy Change	
Goal: Reduce initiation of tobacco use by adolescents and young adults.	• Increase unit price for tobacco products through local or state excise taxes. • Tobacco advertising and promotions that influence adolescents and young adults must be eliminated. • Laws prohibiting the sale of tobacco products to minors must be enforced, and violators must receive penalties (eg, fines, revoking of retail license). • Tobacco settlement monies should be used for tobacco control and other tobacco-related illnesses, rather than for general funds.
Goal: Provide adequate reimbursement for clinical preventive and rehabilitative services.	• Insurance coverage should be provided for evidence-based treatments for nicotine dependency and for promoting healthful nutrition and physical activity. • Clinical preventive services and early outpatient cardiac rehabilitation should be covered by health insurance plans

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for the first time in 100 years.[36] The rising prevalences of obesity and diabetes, strong determinants of later heart disease and stroke, are well recognized.[37] There is abundant evidence that US adults frequently do not recognize heart disease as the number-one cause of disability and death and do not know their own risk or risk factors. For example, a survey of 412 322 American adults between 1991 and 1999 by the Behaviorial Risk Factor Surveillance System examined trends in blood cholesterol screening and awareness.[38] In 1991, 67.3% of participants reported that they had been screened, but only 25.7% of those with high cholesterol had been told their levels were high. By 1999, there was little difference in screening (70.8%) or awareness (28.6%). Additionally, more than a third of persons with established stroke do not receive advice from a health professional on dietary change or exercise in the secondary prevention of heart disease and stroke.[39] Many physical activity programs in schools have been reduced or eliminated, such that daily participation in physical education classes has declined among high school students from 42% of students in 1991% to 25% in 1995.[40] School breakfast and lunch programs should provide heart-healthy meals[18,41] but frequently do not. Large numbers of Americans do not have access to screening for blood pressure or cholesterol or to the preventive care to reduce them, do not recognize early symptoms of heart disease, and do not have access to emergency care or rehabilitation services. Recommendations by health professionals to modify diets or increase physical activity continue to be hampered by lack of grocery stores or restaurants with heart-healthy choices, and by lack of safe, attractive places to be physically active. Tobacco is still accessible to our youth, and many persons are still exposed to environmental tobacco smoke at work and home.

This Community Guide is designed to assist community leaders to meet these challenges. It is hoped that it will provide a framework for concerned healthcare providers, public health practitioners, AHA volunteers, policy makers, and other community leaders to approach this important but imposing task in an orderly, effective manner. In doing so, the Guide will provide an essential component, along with the clinical guidelines, for the comprehensive approach to reducing the burden of heart disease and stroke in our communities.

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