

Evidence-Based Policy Making: Assessment of the American Heart Association's Strategic Policy Portfolio A Policy Statement From the American Heart Association

Darwin R. Labarthe, MD, MPH, PhD, FAHA, Chair;

Larry B. Goldstein, MD, FAHA, Co-Chair; Elliott M. Antman, MD, FAHA;

Donna K. Arnett, PhD, FAHA; Gregg C. Fonarow, MD, FAHA; Mark J. Alberts, MD, FAHA;

Laura L. Hayman, PhD, FAHA; Amit Khera, MD, FAHA; James F. Sallis, PhD, FAHA;

Stephen R. Daniels, MD, PhD, FAHA; Ralph L. Sacco, MD, FAHA; Suhui Li, PhD;

Leighton Ku, PhD; Paula M. Lantz, PhD; Jennifer G. Robinson, MD, MPH, FAHA;

Mark A. Creager, MD, FAHA; Linda Van Horn, PhD, FAHA; Penny Kris-Etherton, PhD, FAHA;

Aruni Bhatnagar, PhD, FAHA; Laurie P. Whitsel, PhD, FAHA; on behalf of the American Heart Association Advocacy Coordinating Committee, Council on Hypertension, Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, Council on Quality of Care and Outcomes Research, Council on Cardiovascular Surgery and Anesthesia, Council on Functional Genomics and Translational Biology, and Council on Epidemiology and Prevention

Background—American Heart Association (AHA) public policy advocacy strategies are based on its Strategic Impact Goals.

The writing group appraised the evidence behind AHA's policies to determine how well they address the association's 2020 cardiovascular health (CVH) metrics and cardiovascular disease (CVD) management indicators and identified research needed to fill gaps in policy and support further policy development.

Methods and Results—The AHA policy research department first identified current AHA policies specific to each CVH metric and CVD management indicator and the evidence underlying each policy. Writing group members then reviewed each policy and the related metrics and indicators. The results of each review were summarized, and topic-specific priorities and overarching themes for future policy research were proposed. There was generally close alignment between current AHA policies and the 2020 CVH metrics and CVD management indicators; however, certain specific policies still lack a robust evidence base. For CVH metrics, the distinction between policies for adults (age ≥ 20 years) and children (< 20 years) was often not considered, although policy approaches may differ importantly by age. Inclusion of all those < 20 years of age as a single group also ignores important differences in policy needs for infants, children, adolescents, and young adults. For CVD management indicators, specific quantitative targets analogous to criteria for ideal, intermediate, and poor CVH are lacking but needed to assess progress toward the 2020 goal to reduce deaths from CVDs and stroke. New research in support of current policies needs to focus on the evaluation of their translation and implementation through expanded application of implementation science. Focused basic, clinical, and population research is required to expand and strengthen the evidence base for the development of new policies. Evaluation of the impact of targeted

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improvements in population health through strengthened surveillance of CVD and stroke events, determination of the cost-effectiveness of policy interventions, and measurement of the extent to which vulnerable populations are reached must be assessed for all policies. Additional attention should be paid to the social determinants of health outcomes.

Conclusions—AHA's public policies are generally robust and well aligned with its 2020 CVH metrics and CVD indicators. Areas for further policy development to fill gaps, overarching research strategies, and topic-specific priority areas are proposed. (*Circulation*. 2016;133:e615-e653. DOI: 10.1161/CIR.0000000000000410.)

Key Words: AHA Scientific Statements ■ cardiovascular health ■ cardiovascular mortality
■ patient advocacy ■ policy

This review offers guidance to evidence-based policy recommendations across the cardiovascular continuum from ideal cardiovascular health (CVH) to recognized cardiovascular disease (CVD), stroke events, and their aftermath for those working to help achieve the American Heart Association (AHA) 2020 Strategic Impact Goals. As context for this review, we highlight the methods for policy development practiced by the AHA, particularly its policy research department.

As organizations strategically plan their policy work and align their advocacy agendas with their mission and impact goals, they must consider criteria to assess whether, if implemented, the policy change will have its intended impact. For the AHA/American Stroke Association, scientific and experiential evidence and potential health impact, along with other criteria such as feasibility, positioning, and engagement, are used to prioritize its advocacy positions. Policy development, systems, and environmental change are critical strategies for moving large segments of the population toward better health.¹ As part of this process, the AHA rigorously assesses the evidence behind its strategic planning activities and its reporting to key stakeholders and the public health community. This approach can serve the AHA as a guide to further policy development and could be a model for other nonprofit organizations undertaking advocacy work.

Furthermore, the review addresses needed policy research in terms of 3 research functions: for current policies, to evaluate their translation and implementation; for new policy development, to expand and strengthen the evidence base; and for impact assessment of all policies, to monitor determinants of population CVH and outcomes through significantly enhanced surveillance at the national, state, and local levels. This need is discussed at 2 levels: (1) the overarching questions of implementation science, cost-effectiveness research, and impact evaluation and (2) specific questions relevant to each metric and indicator to be monitored under the 2020 goals.

Aligning the AHA's Policy Agenda With the 2020 Strategic Impact Goals

The AHA's 2020 Strategic Impact Goals target a 10-year 20% improvement in the CVH of all Americans and a 20% reduction in deaths from CVDs and stroke.² Seven metrics for CVH are specified separately for children (those <20 years of age) and for adults (age ≥20 years) and comprise 4 health behaviors (current smoking, body mass index, physical activity, and healthy diet score), and 3 health factors (total cholesterol, blood pressure [BP], and fasting plasma glucose). The level of each metric can be graded for an individual as ideal,

intermediate, or poor, and the 7 corresponding grades allow computation of an overall CVH score ranging from 0 to 14. The metrics and score can be assessed biennially in representative samples of the US population through the National Health and Nutrition Examination Survey (NHANES) to monitor the nation's CVH and the impact of policy changes, overall and for important subgroups.

Mortality reduction goals target deaths from CVDs and stroke and require improvements in acute care processes and medical and procedural secondary prevention therapies.¹ These comprise short- and long-term care (including rehabilitation) for cardiovascular and stroke events—before hospital admission, in the hospital, and after discharge—and interventions to control the same health behaviors and factors noted above. Key data for monitoring the leading indicators of the mortality reduction goal, especially incidence, survival, and recurrence rates of cardiovascular and stroke events, remain to be developed for the US health system.

Evidence-Based Assessment: A Critical Part of the AHA Policy Agenda

The AHA began concerted efforts to influence cardiovascular and stroke-related public policy in the 1980s. In 2011, the AHA published a report summarizing its public policy agenda from the 1980s until that time and projected its future advocacy plans.² The AHA now has public policy initiatives at the federal level, in all 50 states, and in local communities. The policy-making process itself is complex, and there is typically a significant lag time before adoption and implementation are achieved.³ Legislative and regulatory campaigns are implemented by the AHA's government relations, media advocacy, and grassroots network resources, all supported by policy research. For the AHA, assessing the evidence base is a significant part of the policy development process, translating science into policy solutions that have a measurable health impact. The AHA's policy research department serves as a key link between scientists, clinicians, and policy makers, groups that seldom speak the same language, work on different timelines, have different goals, and are accountable to different constituencies, to develop a strategic policy agenda that can improve CVH and decrease CVD and stroke mortality.³ Established policies are evaluated at least on an annual basis for evidence of efficacy in terms of health outcomes and for their current importance to the overall mission of the AHA and are reaffirmed or revised as appropriate.

The AHA uses a comprehensive approach to determine its strategic policy priorities. Several issues are considered

Table 1. AHA Evidence Grading

Levels of Evidence
Class I: There is evidence for and/or general agreement that the intervention is beneficial, useful, and effective. The intervention should be performed.
Class II: There is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the intervention.
Class IIa: The weight of evidence/opinion is in favor of usefulness/efficacy. It is reasonable to perform the intervention.
Class IIb: Usefulness/efficacy is less well established by evidence/opinion. The intervention may be considered.
Class III: There is evidence and/or general agreement that the intervention is not useful/effective and in some cases may be harmful.
The weight of evidence in support of the recommendation
Level of Evidence A: Data are derived from multiple randomized clinical trials or, given the nature of population interventions, from well-designed quasi-experimental studies combined with supportive evidence from several other types of studies.
Level of Evidence B: Data are derived from a single randomized trial or nonrandomized studies.
Level of Evidence C: Only consensus opinion of experts, case studies, or standard of care.

AHA indicates American Heart Association.

and include the potential congruence of the policy with the AHA’s strategic priorities, impact on CVH/mortality, effect on social determinants of health and health disparities, feasibility, likelihood of success, opportunities for engagement and positioning, timetable, necessary resources, and organizational engagement. Potential unintended consequences, risks, and impact on other policy priorities within the AHA agenda are also considered. This report focuses on the 2 foremost considerations: alignment of a candidate policy with the overall AHA strategic priorities and the strength of the scientific evidence to support a particular policy. (The other considerations will be described in detail in a future publication.)

Increasingly, the AHA is assessing the cost-effectiveness of interventions and incorporating economic analyses into its work. The AHA addressed the importance of this aspect of policy analysis in a previously published AHA policy

Table 2. The Guide to Community Preventive Services (Community Guide): Evidence Grading

Recommended: The systematic review of available studies provides strong or sufficient evidence that the intervention is effective. The categories of “strong” and “sufficient” evidence reflect the task force’s degree of confidence that an intervention has beneficial effects. They do not directly relate to the expected magnitude of benefits. The categorization is based on several factors such as study design, number of studies, and consistency of the effect across studies.
Recommended Against: The systematic review of available studies provides strong or sufficient evidence that the intervention is harmful or not effective.
Insufficient Evidence: The available studies do not provide sufficient evidence to determine whether the intervention is or is not effective. This does not mean that the intervention does not work. It means that additional research is needed to determine whether the intervention is effective.

Table 3. USPSTF Grade Definition Suggestions for Practice

A: The USPSTF recommends the service. There is high certainty that the net benefit is substantial. Offer or provide this service.
B: The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. Offer or provide this service.
C: The USPSTF recommends selectively offering or providing this service to individual patients on the basis of professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small. Offer or provide this service for selected patients, depending on individual circumstances.
D: The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. Discourage the use of this service.
I Statement: The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined. Read the clinical considerations section of the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms

USPSTF indicates US Preventive Services Task Force.

statement,⁴ but more research is needed that incorporates economic analyses into policy development, evaluation of implementation, and assessment of long-term value of the policy investment. The AHA has identified economic analysis as a

Table 4. QuIC Assessment Evidence Grading

Category	Description
Best	In general, these components have been shown by rigorous peer-reviewed evidence, which was derived from practice or theory and research, to improve health across many types of settings. These components typically broaden the reach of an intervention and show a larger magnitude of effect. There is also likely evidence of improved equity and/or efficiency.
Promising Quality	In general, these components have been shown by rigorous peer-reviewed evidence, which was derived from practice or theory and research, to improve health across a few types of settings. However, these components typically narrow the reach of an intervention and show a smaller magnitude of effect. There is also likely no evidence on equity and/or efficiency.
Promising Impact	In general, the evidence shows that these components positively affect health across at least a few settings, and there might also be evidence of improved equity and/or efficiency. However, the evidence base is lacking rigorous study types, peer review, and a sufficient amount of evidence from practice or theory and research.
Emerging	In general, there is very little or no evidence on the health, equity, and efficiency impacts of these components. The evidence base is also lacking rigorous study types, peer review, and a sufficient amount of evidence from practice or theory and research.

QuIC indicates Quality and Impact of Component.

priority for ongoing research and will continue to integrate this area into its work.

The present policy review concerns primarily the evidence base of the entire policy agenda conducted by the AHA's policy research department. This assessment was based on relevant scientific guidelines and statements and evidence-based reviews, including, when applicable, findings of the Community Preventive Services Task Force and the US Preventive Services Task Force and results from a new method, the Quality and Impact of Component (QuIC) Evidence Assessment.⁴ Tables 1 through 4 show the evidence reviews relied on: in Table 5 for CVH metrics and in Table 6 for CVD and stroke mortality. For Table 5, the principal sources are the extensive 2012 review by Mozaffarian and colleagues⁵ and several reported by the Community Preventive Services Task Force.^{14,15} Likewise, for Table 6, 2 primary sources were relied on: scientific statements from the AHA/American College of Cardiology (ACC) and the US Preventive Services Task Force. The QuIC assessment is referenced in 2 areas of sugar-sweetened beverages (SSBs) and BP. The policy priorities are listed in order of their level of evidence. When there was discrepancy between the systematic reviews for a particular policy priority, the most recent review incorporating the latest scientific evidence was given foremost consideration.

The AHA develops its guidelines through a rigorous process, often in conjunction with the ACC, but also may develop them alone or collaboratively with other organizations as appropriate. The AHA's guidelines reflect rigorous systematic review and evidence synthesis with quality grading of the evidence, as well as the collective judgment of leading experts in CVD and stroke. They undergo peer review and are approved by the AHA's Science Advisory and Coordinating Committee.¹⁴ The Centers for Disease Control and Prevention (CDC)-supported Community Preventive Services Task Force is an independent, volunteer panel of national experts in preventive medicine and public health that provides the systematic reviews and recommendations summarized in the Community Guide. The US Preventive Services Task Force is convened by the Agency for Healthcare Research and Quality and is similarly an independent, volunteer panel of national experts in the areas of clinical prevention and evidence-based medicine.

The QuIC method, developed recently by the CDC and collaborators, evaluates the best available evidence for a public health policy component, including research in the peer-reviewed literature, gray literature, and experiential evidence. The method categorizes the evidence along a continuum of strength, including emerging, promising impact, promising quality, and best (Table 4 provides definitions). The CDC's Division for Heart Disease and Stroke Prevention used this method on components of community health worker policy^{7,15,16} and plans to use the method on other cross-cutting strategies, including worksite health promotion and patient-centered medical homes. To gain initial experience with this method and with guidance from CDC staff, the AHA policy research department applied the QuIC assessment to drinking water policy, and this analysis is discussed below under Sugar-Sweetened Beverages.

Contributions to the present review from other sources outside of these systematic reviews are noted in the text. In the future, additional authoritative science reviews will be

integrated into the AHA process, with clear guidance for reconciling potential differences among their respective findings.

Purpose of This Report

In this context of AHA's approach to policy development and review, the present writing group addressed the alignment of current AHA policies with elements of the 2020 Strategic Impact Goals. The intent was to ensure that policy guidance is in place to support advocacy and action addressing each component of the goal, thereby maximizing the potential for its attainment. This assessment would also serve to identify gaps in policy and areas of policy development, implementation, and evaluation where additional research and experiential evidence are needed.

Results: Alignment Between the Policies and Goals

Tables 5 and 6 present the main findings of this review. They are organized in accordance with the array of CVH metrics (Table 5) and CVD intervention areas (Table 6) as presented by Lloyd-Jones et al² and expanded by the writing group. For each entry in Table 5, the criteria for ideal, intermediate, or poor status are indicated, separately for children and adults. It should be noted that although the CVH metrics are defined separately for children (<20 years of age) and adults (≥20 years of age), the policies are not always distinguished in this way; therefore, the alignment between age-specific metrics and corresponding policies is not always clear. Furthermore, in some instances, the designation "not prioritized" is noted, meaning that the AHA has elected not to develop policy specific to these targets at the present time. Such seeming gaps in the policy portfolio might be expected as a result of limitations of time and resources. In addition, in some cases, a metric is addressed indirectly. For example, body mass index (BMI) has not been prioritized explicitly but is addressed through policies on physical activity and diet. For each entry in Tables 5 and 6, the interventions supported under current AHA policies are listed in descending order of strength of supporting evidence. The evidence reviews considered by policy staff are also noted.

Cardiovascular Health

Current Smoking and Tobacco Product Use

Cigarette smoking continues to be a leading cause of preventable disease and death in the United States, claiming ≈467 000 lives prematurely every year.¹⁷ Roughly 1 in every 5 premature deaths in the country each year can be attributed to smoking.¹⁸ In all analyses, mortality is higher and the quality of life is lower in smokers than nonsmokers at all ages.¹⁹ Although the health consequences of smoking are often popularly associated with lung disease and cancer, CVD is actually by far the leading cause of death in smokers.²⁰ The number of cardiovascular deaths worldwide resulting from smoking (1.69 million deaths) far exceeds either smoking-related lung cancer deaths (0.97 million deaths) or pulmonary disease deaths (0.85 million deaths) alone.²⁰ Although cardiovascular risks of smokeless tobacco products are lower, the use of these products is not without harm. Even those with low overall toxicity can cause important cardiovascular injury.²¹

Table 5. Evidence Base Summary for the AHA Policy Portfolio Aligned With the Metrics for the AHA’s 2020 Impact Goal: Cardiovascular Health

Health Behaviors and Factors	Policy Interventions	Cited Evidence Reviews
<p>Current smoking</p> <p>Children (12–19 y)</p> <p> Ideal: Never tried or never smoked a whole cigarette</p> <p> Poor: Current smoker</p> <p>Adult</p> <p> Ideal: Never smoked or quit >1 y ago</p> <p> Intermediate: quit <12 mo ago</p> <p> Poor: current smoker</p>	Support comprehensive clean indoor air laws (state/community level and federal property)	<p>AHA (Mozaffarian et al⁵): (see Table 1 for evidence grading): Class I, LOE A</p> <p>Community Guide (see Table 2 for evidence grading): Recommended</p>
	Increase tobacco excise taxes (federal/state/municipal)	<p>AHA (Mozaffarian et al⁵): Class I, LOE A</p> <p>Community Guide: Recommended</p>
	Increase funding for tobacco cessation and prevention programs (state)	<p>AHA (Mozaffarian et al⁵): Class I, LOE A</p> <p>Community Guide: Recommended</p>
	Ensure comprehensive tobacco cessation benefits in private and public health insurance plans with no copay (federal/state)	<p>AHA (Mozaffarian et al⁵): Class IIa, LOE C</p> <p>USPSTF (see Table 3): A</p> <p>Community Guide: recommended</p>
	Establish purchase restrictions for youth (increase purchasing to 21 y of age) (federal/state)	Community Guide: insufficient evidence
	FDA regulation of tobacco (federal)	Not available*
	Monitor and regulate new tobacco products coming into the marketplace (federal/state)	Not available
	Eliminate the sale of tobacco products in pharmacies and other health-related institutions (state/local)	Not available
<p>BMI/healthy weight</p> <p>Children (2–19 y)</p> <p> Ideal: BMI between the 15th and 85th percentiles</p> <p> Intermediate: BMI between the 85th and 95th percentiles</p> <p> Poor: BMI >95th percentile</p> <p>Adults</p> <p> Ideal: BMI between 18.5 and 25 kg/m²</p> <p> Intermediate: BMI 25–29.9 kg/m²</p> <p> Poor: ≥30 kg/m²</p>	Not prioritized†	
<p>Physical activity</p> <p>Children (12–19 y)</p> <p> Ideal: ≥60 min of moderate to vigorous physical activity a day</p> <p> Intermediate: 1–59 min of moderate to vigorous physical activity a day</p> <p> Poor: no physical activity</p> <p>Adults</p> <p> Ideal: at least 150 min of moderate or 75 min of vigorous physical activity each week</p> <p> Intermediate: 1–149 min/wk moderate or 1–74 min/wk vigorous activity</p> <p> Poor: no physical activity</p>	Improve the accountability and increase the amount and quality of physical education offered in schools (federal/state/local)‡	<p>AHA (Mozaffarian et al⁵): Class IIa, LOE C</p> <p>Community Guide: Recommended</p> <p>PAG Mid-Course Report: Sufficient⁶</p>
	Implement active play and screen time standards in early care and education settings through licensing standards,‡ accreditation, quality rating systems, and professional credentialing (federal/state/local)	<p>AHA (Mozaffarian et al⁵): Class I, LOE A</p> <p>PAG Mid-Course Report: Suggestive</p>
	Increase the implementation of physical activity policies, screening, and active design in the worksite environment	AHA (Mozaffarian et al ⁵): Class IIa, LOE A
	Require that all road construction and reconstruction create “complete streets” that are safe and convenient for all users and modes of transportation‡ (state/local)	<p>AHA (Mozaffarian et al⁵): Class IIa, LOE B</p> <p>Community Guide: Recommended</p> <p>PAG Mid-Course Report: Suggestive</p>
	Increase appropriations for walking/biking and other active transportation opportunities in communities (federal/state/local)	<p>AHA (Mozaffarian et al⁵): Class IIa, LOE B</p> <p>Community Guide: Recommended</p> <p>PAG Mid-Course Report: Suggestive</p>
	Increase funding for Safe Routes to School for both infrastructure- and non-infrastructure-based projects‡ (federal/state/local)	<p>AHA (Mozaffarian et al⁵): Class IIb, LOE B</p> <p>PAG Mid-Course Report: Suggestive</p>

(Continued)

Table 5. Continued

Health Behaviors and Factors	Policy Interventions	Cited Evidence Reviews
Physical activity (continued)	Target funding for improving physical activity environments and policy and program environments in communities with high need (federal/state)	Community Guide: Recommended PAG Mid-Course Report: Suggestive
	Implement reimbursement for and delivery of health/fitness counseling in an exercise prescription (federal/state)	AHA (Mozaffarian et al ⁵): Class IIb, LOE C USPSTF: B (for adults who are overweight or obese and have additional CVD risk factors) PAG Mid-Course Report for Children: Insufficient
	Support appropriations for state-level reporting and implementation of shared-use programs, as well as incentives to schools to promote shared use‡ (state/local)	AHA (Mozaffarian et al ⁵): Class IIa, LOE A PAG Mid-Course Report: Insufficient
	Require out-of-school time programs to meet national standards for healthy eating and physical activity‡	PAG Mid-Course Report: Insufficient
<p>Healthy diet score</p> <p>Children (5–19 y) and adults</p> <p>Ideal for cardiovascular health: in the context of a DASH-type dietary pattern, adults and children should achieve at least 4 of the 5 following key components of a healthy diet:</p> <p>Fruits and vegetables: >4.5 cups/d</p> <p>Fish: More than two 3.5-oz servings a week (preferably oily fish)</p> <p>Fiber-rich whole grains (>1.1 g fiber per 10 g carbohydrates): three 1-oz-equivalent servings per day</p> <p>Sodium: <1500 mg/d</p> <p>SSBs: <450 kcal (36 oz)/wk</p> <p>Ideal: diet score 4–5</p> <p>Intermediate: diet score 2–3</p> <p>Poor: diet score 0–1</p>	Overall diet:	
	Promote and protect the implementation of robust nutrition standards for school meals and competitive foods‡ (federal/state/local)	AHA (Mozaffarian et al ⁵): Class I, LOE A
	Promote robust nutrition standards in early care and education through licensing standards,‡ accreditation, quality rating systems, and professional credentialing. (federal/state/local)	AHA (Mozaffarian et al ⁵): Class I, LOE A
	Promote evidence-based nutrition standards, nutrition education, physical activity, and screen time standards in before- and after-school program (federal/state/local)	AHA (Mozaffarian et al ⁵): Class I, LOE A
	FDA removes “generally recognized as safe” status for industrially produced <i>trans</i> fats (federal)	AHA (Mozaffarian et al ⁵): Class I, LOE B
	Eliminate unhealthy food marketing and advertising to children in schools and restaurants and by strengthening Children’s Food and Beverage Advertising Initiative voluntary standards‡ (federal/state/local)	AHA (Mozaffarian et al ⁵): Class IIa, LOE B/Class I, LOE B
	Establish strong regulation to support and strengthen local school wellness policies‡ (federal/state)	AHA (Mozaffarian et al ⁵): Class IIa, LOE A
	Healthy food procurement on government property‡ (federal/state)	AHA (Mozaffarian et al ⁵): Class IIa, , LOE B
	Ensure that calorie counts and nutrition information is available to consumers at the point of purchase on menus and menu boards‡ (federal/state)	AHA (Mozaffarian et al ⁵): Class IIb, LOE A
	Secure public funding to create or expand a healthy corner store initiative that increases the amount of healthy food being offered in existing corner stores in low- and moderate-income communities‡ (federal/state/local)	AHA (Mozaffarian et al ⁵): Class IIb, LOE B

(Continued)

Table 5. Continued

Health Behaviors and Factors	Policy Interventions	Cited Evidence Reviews
Healthy diet score (continued)	Secure public funding to create or expand healthy food financing initiatives to increase the number of healthy food retail outlets in underserved communities‡ (federal/state/local)	AHA (Mozaffarian et al ⁶): Class IIb, LOE C
	Finalize update of the Nutrition Facts Panel (federal)	Not available
	Helps shape the Dietary Guidelines for Americans through the regulatory process (federal)	Not available
	Increase fruits and vegetables:	
	Advocate for adequate funding and robust implementation of the Fresh Fruit and Vegetable Program (federal)	AHA (Mozaffarian et al ⁶): Class IIa, LOE A
	Increase the use of electronic benefit transfers at farmers' markets (state/local)	AHA (Mozaffarian et al ⁶): Class IIa, LOE A
	Increase appropriations for implementation of school and community gardens (federal/state)	AHA (Mozaffarian et al ⁶): Class IIa, LOE A
	Ensure adequate nutrition services funding, protect and preserve the integrity of the Women, Infants, and Children food packages‡ (state/local)	Not available
	Fish	Not prioritized
	Fiber	Not prioritized
	Reduce sodium	
	Support FDA voluntary standards for sodium reduction in the food supply (federal)	Not available
	Support revisions to the Nutrition Facts Panel that adjust the daily value for sodium	Not available
	Reduce SSB consumption:	
	Support significant increases in excise taxes on SSBs (federal/state/local)	AHA (Mozaffarian et al ⁶): Class IIa, LOE B
	Remove SSBs from all restaurant children's meals‡ (state/local)	AHA (Mozaffarian et al ⁶): Class IIa, LOE B
	Remove taxes levied on bottled and vended drinking water‡ (state/local)	AHA (Mozaffarian et al ⁶): Class IIa, LOE B
	Ensure that water is free, clean, and accessible in the school and community setting‡ (federal/state/local)	AHA (Mozaffarian et al ⁶): Class IIb, LOE B QuIC: 28, Promising Quality Rating (calculated by AHA policy research staff)
Support SSB warning labels (state/local)	Not available	
Total cholesterol Children (6–19 y) Ideal: <170 mg/dL Intermediate: 170–199 mg/dL Poor: ≥200 mg/dL Adults Ideal: <200 mg/dL Intermediate: 200–239 mg/dL or treated to goal Poor: ≥240 mg/dL	Not prioritized	

(Continued)

Table 5. Continued

Health Behaviors and Factors	Policy Interventions	Cited Evidence Reviews
BP Children (8-19 y) Ideal: <90th percentile Intermediate: 90th–95th percentile or SBP ≥120 or DBP ≥80 mm Hg Poor: >95th percentile Adults: Ideal: BP <120/<80 mm Hg Intermediate: SBP=120–139 mm Hg, DBP=80–89 mm Hg, or treated <140/<90 mm Hg Poor: treated BP >140/>90 mm Hg or untreated >140/>90 mm Hg	Increase access to appropriate treatments (eg, help inform/guide Medicare National Coverage Determination) (federal/state)	Community Guide: Recommended QuIC: Best (see Table 4 for QuIC evidence grading) CHWs provide chronic disease care services ⁷ Impact score=40 (maximum)
	Assure continued funding and implementation of Million Hearts (federal/state)	Not available
	Monitor issues about drugs and devices, including research and adequate approval times and integration into delivery systems of care (federal/state)	Not available
	Improve medication adherence (federal/state)	Not available
	Integrate the AHA algorithm into delivery systems of care (federal/state/local)	Not available
Fasting plasma glucose Children and adults Ideal: <100 mg/dL Intermediate: 100–125 mg/dL or treated to goal Poor: ≥126 mg/dL	Not prioritized	

AHA indicates American Heart Association; BMI, body mass index; BP blood pressure; CHW, community health worker; CVD, cardiovascular disease; DASH, Dietary Approaches to Stop Hypertension; DBP, diastolic blood pressure; FDA, US Food and Drug Administration; LOE, Level of Evidence; PAG, Physical Activity Guidelines; QuIC, Quality and Impact of Component; SBP, systolic blood pressure; SSB, sugar-sweetened beverage; and USPSTF, US Preventive Services Task Force.

*Not available: the evidence reviews considered for this document did not address this policy priority, but individual studies, experiential evidence, or standard of care supports this work.

†Not prioritized: one of the AHA metrics not prioritized in the association’s strategic planning, so there are no aligned policy priorities.

‡Voices for Healthy Kids policy priorities, a partnership between the AHA and Robert Wood Johnson Foundation to address childhood obesity.

Smoking claims the lives of not only those who use tobacco but also those who are exposed to environmental tobacco smoke. It was estimated that during 2011 to 2012, 58 million nonsmokers in the United States were exposed to secondhand smoke.²² Nearly 7300 lung cancer and 34000 heart disease deaths occurred during 2005 to 2009 among nonsmokers in the United States.²³ Smoking costs the US economy >\$301 billion per year, including \$67.5 billion in workplace productivity losses, \$117 billion in losses resulting from premature deaths, and \$116 billion in direct medical expenditures.²⁴ Tobacco control efforts by the AHA and its public health partners have contributed to a relative decline in US cigarette consumption by >24% over the past decade.²⁵ The various policies prioritized by the AHA and its national partners have included increased funding for tobacco cessation and prevention programs, comprehensive smoke-free air laws, tobacco excise taxes, comprehensive tobacco cessation benefits within public and private healthcare plans, raising the purchasing age for tobacco to 21 years, and US Food and Drug Administration (FDA) regulation of tobacco. This tobacco policy work is guided by decades of robust scientific evidence and serves as an important case study for evidence-based policy making that can transform population health. In addition to the partnership engagement of the AHA with the Million Hearts Initiative to promote smoking cessation policies, the AHA’s principal policy approaches regarding tobacco are as follows.

Advocate for Comprehensive Clean Indoor Air Laws and Regulation

Advocating for comprehensive clean indoor air laws at the state and local levels is a pillar of the AHA’s tobacco control advocacy efforts and has led to clear health benefits.^{26,27} Pooled data show that smoke-free bans reduce the incidence of acute coronary events by 6% to 47%, a marked change in a short period.²⁷ Laws and regulations should be in compliance with the Fundamentals of Smoke-Free Workplace Laws guidelines developed with several national partners.²⁸

Environmental tobacco smoke (ie, secondhand smoke) causes heart disease, cancer, lung disease, and other illnesses in both children and nonsmoking adults.^{29,30} The direct and indirect healthcare costs associated with diseases caused by secondhand smoke exposure are estimated at \$10 billion each year.³¹ If recent trends in the reduction in the prevalence of this exposure continue, the health and economic burden of passive smoking in the United States could be cut annually by ≈25% to 30%.³⁰ This potential reduction has important ramifications for lowering expenditures by Medicare, Medicaid, and private insurance.

Increase Tobacco Excise Taxes and Ensure That All Tobacco Products Are Included

The AHA advocates for significant increases in tobacco excise taxes. A report from the Campaign for Tobacco Free Kids calculated that if all states and Washington, DC, raised their cigarette tax rates by \$1 per pack, they would raise \$9.1 billion in

Table 6. Evidence Base Summary for the AHA Policy Portfolio Aligned With the Indicators for the AHA’s 2020 Impact Goal: CVD and Stroke Mortality

Indicators	Policy Interventions	Cited Evidence Reviews
Acute event: improve systems of care (acute response, acute care, and palliative care) for CHD, stroke, heart failure, and other CVDs	Support robust STEMI systems of care (state/local)	ACC/AHA guidelines recommend PCI as the preferred strategy in STEMI, including those patients presenting >3 h after onset of chest pain AHA/ACC guidelines: Class I, LOE A ⁸
	Implement robust stroke systems of care, including stroke telemedicine (federal/state/local)	AHA guidelines: Class I, LOE A and Class I, LOE B ^{9,10}
	Support comprehensive, coordinated emergency medical services systems of care: support strengthening 9-1-1 systems, establish quality community CPR/AED programs, establish quality school-based programs, protect funding for NEMSIS (federal/state/local)	AHA guidelines: Class I, LOE B ^{11,12}
	Support out-of-hospital cardiac arrest systems (state/local)	AHA consensus statement ¹²
	Inform payment and delivery system reform efforts (federal)	Not available*
	Ensure optimal use of health information technology (federal)	Not available
	Improve the quality and comprehensiveness of healthcare data reporting (federal)	Not available
	Increase the use of clinical registries (federal/state)	Not available
	Integrate the AHA’s principles for palliative care within delivery of care (federal)	Not available
	Ensure implementation of pulse oximetry for newborns (federal/state)	Not available
	Explore evidence-based opportunities for integration with mobile health technologies in delivery systems of care (federal)	Not available
Postevent rehabilitation: increase referral to, use of, adequate reimbursement for, and completion of CR and SR	Increase referral and use of CR by decreasing copays, increasing the healthcare professionals who can supervise CR, expanding coverage for heart failure patients, and allowing patients to move more easily between intensive CR and regular CR (federal)	AHA guidelines: Class I, LOE A ¹³
	Assure adequate coverage/reimbursement for comprehensive stroke rehabilitation (federal)	AHA guidelines: Class I, LOE A ⁹
	Broadly implement automatic and coordinated referral strategies (federal/state)	AHA guidelines: Class III

ACC indicates American College of Cardiology; AED, automated external defibrillator; AHA, American Heart Association; CHD, coronary heart disease; CPR, cardiopulmonary resuscitation; CR, cardiac rehabilitation; CVD, cardiovascular disease; LOE, level of evidence; NEMSIS, National EMS Information System; PCI, percutaneous coronary intervention; SR, stroke rehabilitation; and STEMI, ST-segment–elevation myocardial infarction.

*Not available: the evidence reviews considered for this article did not address this policy priority, but individual studies, experiential evidence, or standard of care supports this work.

new annual state tax revenues, save \$52.8 billion in immediate and long-term healthcare costs, prevent >2.3 million kids from becoming smokers, prompt >1.2 million adult smokers to quit, and prevent >1 million premature deaths from smoking.³² A more recent report calculated that a federal excise tax increase of 94 cents would prevent 1.74 million children from becoming addicted adult smokers over the next 18 years, save 989 800 Americans from premature death resulting from smoking, and save \$63.39 billion in long-term healthcare costs from adult and youth smoking declines.³³

Increase Funding for Tobacco Cessation and Prevention Programs

The AHA advocates for sustainable funding for state tobacco prevention and cessation programs at levels that meet or exceed CDC recommendations. Tobacco control programs should be comprehensive, developed in accordance with CDC recommendations, staffed appropriately, and administered

effectively. CDC’s best practices help reduce tobacco use, address social norms around smoking, and support robust school programs, enforcement of existing regulations and laws, statewide programs, cessation programs, countering of marketing efforts (including paid broadcast and print media), media advocacy, public relations, public education and health promotion activities, surveillance and evaluation, and administration and management.

Advocate for Comprehensive Coverage of Tobacco Cessation Services in Private and Public Health Insurance Plans

The AHA advocates for comprehensive coverage of tobacco cessation services in public and private health insurance programs that include medications and counseling. Full implementation of the Affordable Care Act (ACA) has the potential to assist current smokers to quit because the act puts more emphasis on prevention in health care, including tobacco cessation. Comprehensive coverage of tobacco cessation offers

new opportunity to encourage tobacco cessation, to minimize tobacco use, or to switch to modalities of uncertain benefit such as electronic cigarettes (e-cigarettes). In general, facilitating tobacco cessation remains a highly cost-effective strategy, although it is very difficult for most people to quit this deadly, addictive habit.³⁴ Available forms of nicotine replacement therapy (gum, transdermal patch, drugs for smoking cessation, nasal spray, inhaler, and lozenges) increase quit rates by 50% to 100% compared with not using any of these products; however, <1 in 5 smokers making an attempt to quit takes advantage of these therapies.³⁵ The most successful programs have a 1-year quit rate of $\approx 35\%$ (compared with 5% for unsupported attempts) and cost about \$1500 per quitter at a cost of \$202 per life-year saved with a return on investment of \$5.45 for every \$1 of program cost.³⁶ Therefore, the AHA supports not only comprehensive coverage of tobacco cessation but also wide dissemination of these programs and recruitment of individuals who plan to quit but could not or have not taken advantage of these interventions.

Promote Tobacco 21

Tobacco 21 is an emerging policy strategy to reduce youth tobacco use because most adults start smoking tobacco before 21 years of age.³⁷ Modeling research has shown that raising the purchasing age may reduce the smoking rate by 12%, reduce smoking-related mortality by 10%, and lead to 249 000 fewer premature deaths and 4.2 million fewer years of life lost.³⁷ The AHA has recently added this priority to its tobacco policy agenda and will continue to evaluate the emerging research addressing its effectiveness.

Provide FDA Regulation of Tobacco

AHA worked with Congress to pass the 2009 Family Smoking and Tobacco Control Act.³⁸ This legislation, for the first time, gave the FDA the oversight authority to regulate tobacco products and to restrict tobacco company efforts to addict more children and adults. The AHA continues to work with the FDA and the Center for Tobacco Products to provide evidence and advice with potential to facilitate the development and implementation of FDA regulatory and other policy recommendations.

Regulate e-Cigarettes and Other New Tobacco Products

In recent years, the advent of e-cigarettes has significantly changed the tobacco landscape. Current population surveys show that 3% to 7% of the adult population has used e-cigarettes.³⁹ Among students in grades 6 through 12, current e-cigarette use has increased from 1.1% in 2011 to 2.1% in 2012, and ever e-cigarette use increased from 3.3% to 6.8% in the same years.^{40,41} By 2012, 1.78 million high school and middle school students nationwide had tried e-cigarettes.⁴¹ E-cigarette sales have been projected to increase from \$2 billion in 2012 to top \$10 billion in 2017.⁴²

Proponents of e-cigarettes maintain that these products emulate smoking behavior without exposing the user to the combustible products found in conventional cigarette smoke that are deleterious to health.⁴³ They argue that the use of e-cigarettes could potentially reduce exposure to these harmful combustion products.⁴⁴ Some e-cigarette enthusiasts suggest that e-cigarettes are less addictive than conventional cigarettes

and that their use could be a viable intermediate step in cessation. However, the long-term health effects of e-cigarette use and their efficacy as a primary cessation aid remain unclear.^{42,45} Moreover, the increased prevalence of e-cigarette use, regardless of the reason, has the potential of renormalizing smoking.⁴² Reducing the visibility of cigarettes has been one of the most successful strategies for tobacco control. Their increased visibility in public places and advertisements could significantly erode previous gains in removing tobacco products from the public eye.⁴² Additionally, the use of e-cigarettes might serve as a gateway to the use of other drugs and harmful substances, especially among youth and other susceptible groups.⁴⁶ Although continued research is required to assess the health and socioeconomic impacts of e-cigarettes, the AHA recognizes the recent increase in e-cigarette use and has published a policy statement⁴² that both outlined how e-cigarettes should be addressed in existing tobacco control and prevention efforts and reinforced the need for further research on the cardiovascular effects of e-cigarettes, their efficacy as a cessation aid, and their role in youth/adolescent addiction to nicotine. The AHA considers e-cigarettes that contain nicotine to be a tobacco product and therefore supports their regulation under existing laws related to the use and marketing of tobacco products.

Eliminate the Sale of Tobacco Products in Pharmacies and Other Health-Related Institutions

The AHA supports policies that prohibit the sale of tobacco products in all healthcare settings, including pharmacies, and considers it incongruous for tobacco products to be sold in any setting that purports to promote health. The prevailing view in the public health community is that tobacco products, including e-cigarettes, should not be sold in pharmacies. For example, CVS Pharmacy made a significant public health statement by removing tobacco products from its stores and by supporting both tobacco cessation and prevention programs with corporate grants and a school-based program in communities across the country. The CVS Health Research Institute found that 8 months after CVS stores stopped selling tobacco products, there was an additional 1% decrease in cigarette pack sales in states with a CVS Pharmacy market share of $\geq 15\%$ compared with states with no CVS Pharmacy stores.⁴⁷ Over that same 8-month period, the average smoker in these states purchased 5 fewer cigarette packs, and in total, ≈ 95 million fewer packs were sold.⁴⁷

BMI (Not Prioritized, Although Implied Within Physical Activity and Dietary Policies)

Obesity is an important underlying cause of CVD and other adverse health outcomes.⁴⁸ The prevalence of overweight and obesity has been increasing in children, adolescents, and adults in the United States and elsewhere.⁴⁹ Once it develops, obesity tends to persist. For example, an obese adolescent is highly likely to become an obese adult. This in turn places obese individuals at risk for CVD,⁵⁰ including ischemic heart disease⁵¹ and stroke,⁵² as well as type 2 diabetes mellitus⁵³ and obstructive sleep apnea.⁵⁴

BMI is a useful measure of obesity and adiposity in the clinical setting.⁵⁵ It is easy to compute from measures of height and weight and is commonly used in national surveys such as NHANES.⁵⁶ The AHA includes BMI as one of

4 health behaviors to track for the 2020 Strategic Impact Goals. Although not solely as a result of health behavior, having metabolic complements as well, BMI reflects the balance of energy intake and output resulting from dietary and physical activity behaviors, such that positive energy balance (excess of intake over output) increases adiposity.

Although not explicitly prioritized by the AHA in its policy agenda, the association has adopted the American Medical Association's Expert Committee recommendations on the assessment, prevention, and treatment of child and adolescent obesity.⁵⁷ These include regular BMI assessment during clinical visits, appropriate behavioral counseling to improve diet and physical activity behaviors, provider training and continuing education on best practice in delivering behavioral interventions, surveillance of BMI in schools and at the state level, and support for measurement and recording of BMI as a Healthcare Effectiveness Data and Information Set measure. Clinicians identify overweight and obese children according to their BMI.⁵⁸ Advocacy for this clinical approach, including evaluation of the effectiveness of BMI assessment as a Healthcare Effectiveness Data and Information Set measure, has dramatically improved the measurement of BMI in clinical settings.

The US Preventive Services Task Force found that behavioral intervention for treatment of obesity can be safe and effective in lowering BMI.⁵⁹ An emerging policy area for the AHA is to determine best practices and policy solutions for integrating lifestyle behavioral counseling and treatment into delivery systems of care, taking into account the costs and value of this investment and determining optimal reimbursement structures. Some further policy approaches may include ensuring BMI assessment, training of healthcare providers in behavioral intervention, and linking providers with community resources to support patient referral for treatment.

Surveillance of BMI in schools has been controversial, chiefly because of concerns about labeling children as overweight or obese, but can be useful as part of an overall approach to lower the prevalence of obesity in school children.⁶⁰ When properly introduced in an objective manner, BMI measurement can provide useful information for parents and primary care physicians or other providers to decide whether diet and other lifestyle intervention is warranted and, if so, what the most effective approach might be. Respecting privacy, applying deidentified data at a state level can be useful in evaluating the success of statewide obesity intervention programs.

There is a strong need to establish environmental policy that offers people the opportunity to make healthful choices. Availability of recommended foods such as fruits, vegetables, whole grains, fish, poultry, and lean meats is necessary, if not sufficient, to increase the likelihood that such foods will be consumed. Likewise, providing safe, well-lighted streets, sidewalks, parks, and recreational facilities improves the chances that people will be more active. Prevention of overweight and obesity is a critical aspect of improving the CVH of the United States.

Physical Activity

The current prevalence and global reach of physical inactivity have been described as a pandemic with far-reaching health, economic, and social consequences.^{61,62} The cardioprotective effects of regular moderate to vigorous physical activity are

well established.⁶³ There is growing evidence of the negative health consequences of sedentary time that are independent of moderate to vigorous physical activity such as weight gain, type 2 diabetes mellitus, CVD, cancer, and total mortality.⁶⁴ Unfortunately, in a comparison across 10 developed countries, US children had the lowest measure of physical activity, half the amount of the highest country.⁶⁵ As a nation and across the globe, we are increasingly becoming more sedentary.⁶⁶ Fewer than half of US adults (48%) meet the Physical Activity Guidelines for Americans,⁶⁷ and this is largely from self-reported data. Actual, objectively measured levels of physical activity in the adult population are even lower.⁶⁸

A wide range of evidence-based physical activity interventions target individuals, groups, schools, early child care, workplaces, other organizations, and community built environments.^{5,69,70,71,72} Policies can facilitate widespread implementation of effective physical activity interventions by setting standards, requiring programs, providing incentives for individual behavior change, and requiring or funding built environment changes.

The AHA has adopted policy goals related to school/early child care, workplace, and community physical activity interventions. Further research is needed to identify effective and cost-effective interventions for reducing sedentary behavior. Estimates suggest that \$5.6 billion in heart disease costs could be saved if 10% of Americans began a regular walking program.⁷³ Most of the physical activity policies shown in Table 6 are supported as evidence-based strategies. Policy targets include the following.

Improve Physical Education in Schools and Accountability for Program Quality

Most school-based policies promote programs that have been evaluated in controlled trials. Enhanced physical education programs that emphasize more class time spent in moderate and/or vigorous physical activity increase the amount of time students spend in moderate to vigorous physical activity by 10%.⁷⁴ Policy interventions involving increased staff training increased moderate to vigorous physical activity by 18% after a 2-year follow-up.⁷⁵ A physical education program that includes the provision of equipment, staff training, a teaching assistant, and an updated curriculum can be successfully implemented in schools to ensure that participants spend at least 50% of the class engaged in moderate to vigorous physical activity.⁷⁶ Children average 25 more minutes of physical education per week when a gymnasium is available.⁷⁷

Mandated physical education policy in schools may have the greatest physical activity-related energy expenditure among all school- and community-based policies.⁷⁸ Students in policy-compliant districts are nearly 30% more likely to be physically fit than those in noncompliant districts.⁷⁹ Long-term exercise programs for children have been shown to reduce BMI and diabetes mellitus risk factors and to improve cardiovascular risk factors such as cholesterol and BP.^{80,81}

Implement Active Play and Screen Time Standards in Early Care and Education Settings

Emerging evidence supports the effectiveness of early care and education standards for physical activity and screen time

through licensing laws and regulation, accreditation, quality rating improvement programs, and professional development opportunities for staff.⁸² A recent study by Gortmaker et al⁸³ showed that early care and education interventions could reach a population of 1.18 million, preventing 38 400 childhood obesity cases if implemented nationally, at a cost of \$613 per BMI unit change. The Robert Wood Johnson Foundation maintains that children's social and economic conditions have direct effects on health and that children who participate in high-quality early childhood development programs experience a range of health benefits that have short- and long-term impact.⁸⁴ Appropriations will have to ensure that resources are getting to centers in vulnerable communities to implement the nutrition and physical activity standards.

Increase Physical Activity Screening, Policies, and Active Design in the Workplace Environment

The workplace is an important setting for reaching the millions of employed adults with health-related interventions where they are spending a majority of their day. Overall, as occupations have become more sedentary, calorie expenditure at work has decreased over the past 5 decades by >100 cal/d.⁸⁵ Fitness in the workplace correlates with more than just health. It has also been associated with a 5% to 10% wage increase,⁸⁶ increased overall family earnings,⁸⁷ lower debt, and lower long-term unemployment.⁸⁸ Business-related outcomes related to employee fitness include reduced absenteeism, productivity gains, lower healthcare costs, lower turnover, decreased short-term disability, and improved employee job satisfaction and work performance.⁸⁸

The interventions have to go beyond simple programming to include workplace culture, occupational safety, active design policies for sedentary environments, leadership role modeling, and policies to promote physical activity and physical fitness. The AHA supports comprehensive worksite wellness programs^{89,90} and will continue to respond to regulation around worksite wellness programs and health risk/biometric assessments. The AHA will strive for regulation that protects employees and motivates employers to continue to sponsor comprehensive, evidence-based interventions. Further research is needed to understand the impact of incentive design, mobile health technologies, environmental design, workplace culture, and policies on promoting physical activity and physical fitness within the worksite environment.

Increase Adoption of Active Design and Active Transportation in Communities, Including Complete Streets Policies, Walking and Biking Trails, and Safe Routes to School

Complete Streets policies direct transportation agencies and engineers to develop streets that are safe for all users regardless of age, ability, or mode of transportation (eg, cars, public transit users, bicyclists, and pedestrians) to move through the community. Policies that improve built environments are based on cross-sectional studies and quasi-experimental evaluations of "natural experiments." Nevertheless, there is substantial documentation of the importance of community design, mixed land use, and connected streets (ie, walkable neighborhoods) in facilitating walking for transportation.⁶

Changes in zoning laws are needed to achieve these types of built environments. Evidence of the importance of street-level design of sidewalks and street crossings is encouraging but limited,⁹¹ so further research is needed. Improving pedestrian and bicycling facilities is the goal of Complete Streets policies. Some research has shown that Complete Streets policies can lead to a 50% increase in the number of walkers⁹² and a 35% increase in overall physical activity.⁷² Recent evidence supports the effectiveness of federal Safe Routes to School policies and funding for increasing physically active travel to and from school.^{93,94}

Implement Reimbursement for and Delivery of Physical Activity/Physical Fitness Counseling With an Exercise Prescription and Integrated Systems of Care

International studies support healthcare provider referrals to intensive diet and exercise counseling in community settings,⁹⁵ but more studies conducted in the United States are needed. An analysis by the CDC showed that in 2013, 36.8% of US adults (89 million) met the criteria to be classified as eligible for intensive behavioral counseling for CVD prevention, including 40% of men and 33.5% of women.⁹⁶ Nationwide, ≈20% of adults were eligible and did not meet the criteria for aerobic physical activity, meaning that there are ≈47.8 million adults in the United States who currently should have been receiving physical activity counseling and could be provided an exercise prescription.⁹⁶ The vast majority of primary care providers do not feel comfortable discussing behavioral changes in the context of physical activity. Much more research and modeling are needed to determine the optimal delivery systems of care and potential role for mobile health technologies.

Shared Use Programs

Shared use of school facilities for community recreation is a promising policy, but further evaluation is needed to determine the effectiveness of uptake and implementation of policies.⁹⁷ This policy work is generally targeted to reduce disparities in access to recreation facilities. Pilot research has shown that children are significantly more likely to be physically active when they have access to fields and play areas after school⁹⁸ and that children are 84% more physically active in communities that have shared use agreements,⁹⁹ but more research is needed.

Support Physical Activity and Screen Time Standards in Out-of-School Time Programs

There is limited evidence for the effectiveness of standards in before- and after-school programs,¹⁰⁰ so further evaluation of these strategies is needed.

Future Policy Considerations

Changing national and state transportation goals from an automobile orientation to a balanced multimodal system could shift priorities and funding to walking and bicycling.^{100a} Oregon implemented such policies, providing a successful case example.¹⁰¹

Policies to reduce disparities in physical activity and to improve CVD outcomes should be considered. Proximity to parks is related to physical activity in youth and adults, yet low-income and mostly minority neighborhoods are

less likely to have parks.^{102,103} Thus, policies to require parks within walking distance of all homes could reduce disparities.

Healthy Diet Score

The AHA's healthy diet score comprises 5 primary metrics: intake of fruits and vegetables (≥ 4.5 cups/d), seafood consumption (2 or more 3.5-oz servings per week, preferably oily fish), intake of fiber-rich whole grains (3 or more 1-oz-equivalent servings per day of ≥ 1.1 g fiber per 10 g carbohydrate), sodium intake (to ≤ 1500 mg/d), and limiting SSBs to 450 kcal (≤ 36 oz)/wk.² In addition, secondary goals address legumes, nuts, and seeds (4 servings a week); processed meats (none or no more than 2 servings a week); and saturated fat ($< 7\%$ of total energy intake,² with a specific target of 5%–6% of calories along with minimal intake of *trans* fat).¹⁰⁴ These specific goals are set within the context of a healthy dietary pattern. Currently, stratification of the healthy diet metrics is binary (yes/no) in nature. However, as the AHA's strategic planning and outcome evaluation procedures evolve, the association may adopt a graded or continuous measure to recognize gradual improvements in diet. Strategically, the AHA has emphasized a subset of the diet metrics to reach its 2020 goal: reducing SSB consumption, reducing sodium, and increasing fruit and vegetable intake. However, several AHA policy priorities using systemic interventions are intended to benefit the overall diet.

Overall Dietary Pattern

The dietary pattern based on the Dietary Approaches to Stop Hypertension (DASH) study is widely advocated.¹⁰⁵ This eating pattern represents intake of nutrients, foods, and food groups that both support optimal nutritional status and decrease cardiometabolic risk among different age, sex, and ethnic groups.^{106,107} Although studies have often focused on single nutrients, including saturated fat, dietary cholesterol, sodium, and polyunsaturated fatty acids, the current recommendations reflect more recent findings documenting the benefits of a DASH-like eating pattern that is consistent with studies that have achieved successful adherence with beneficial CVH results.^{108–110} These eating patterns are associated with improved cardiovascular outcomes and reduced morbidity and mortality from chronic diseases.¹¹¹

The 2015 US Dietary Guidelines Advisory Committee reviewed 142 articles on dietary patterns and CVD that met established criteria.¹¹² Included were 55 articles summarizing the findings of 52 prospective cohort studies and 7 randomized, controlled trials, as well as the 2013 AHA/ACC lifestyle guideline and associated National Heart, Lung, and Blood Institute lifestyle report, both based primarily on randomized, controlled trials. In addition, the US Dietary Guidelines Advisory Committee took into account the results of 6 systematic reviews/meta-analyses published since 2008, including several studies not included in those previous guidelines. Their conclusion is congruent with AHA policies:

Dietary patterns characterized by higher consumption of vegetables, fruits, whole grains, low-fat dairy, and seafood, and lower consumption of red and processed meat, and lower intakes of refined grains, and

*sugar-sweetened foods and beverages relative to less healthy patterns; regular consumption of nuts and legumes; moderate consumption of alcohol; lower in saturated fat, cholesterol, and sodium and richer in fiber, potassium, and unsaturated fats.*¹⁰⁵

Moreover, the 2015 Dietary Guidelines for Americans recently issued recommendations for 3 food-based dietary patterns (healthy US-style pattern, healthy Mediterranean-style pattern, and the healthy vegetarian pattern) that are consistent with AHA policies.¹¹³

Overall diet policy interventions currently supported by the AHA include the following:

1. Promote and protect the implementation of robust nutrition standards for school meals and competitive foods.

The federal meal and Smart Snack standards double the fruit and vegetables served to children at mealtimes, reduce sodium, increase whole grains, and offer healthy beverages. Many students consume up to half of their daily calories at school.¹¹⁴ In a recent study, robust nutrition standards for school meals and competitive foods reached a large population of children (50 million children attend kindergarten through grade 12 schools each day) and predicted that the new standards would prevent an estimated 1.8 million cases of obesity at a cost of \$53 per BMI unit change.⁸³

2. Promote robust nutrition standards in early care and education.

The evidence base for early care and education interventions is reviewed in the physical activity section (above) and is an emerging area of research with early indications of success for establishing important foundations for healthy living.

3. Promote evidence-based nutrition standards and nutrition education in before- and after-school programs.

The evidence regarding out-of-school time interventions is also reviewed in the physical activity section. Significant additional research is warranted to determine the efficacy and impact of the current nutrition standards.

4. Eliminate unhealthy food marketing and advertising to children in schools and restaurants.

A report from the Federal Trade Commission¹¹⁵ revealed that industry spent nearly \$1.8 billion in 2009 on marketing and advertising foods and beverages to children. The top 3 topics were fast food (\$714 million), carbonated beverages (\$395 million), and breakfast cereals (\$186 million).¹¹⁵ The fast-food industry spends nearly \$2 million every day on advertising to children.¹¹⁵ On average, children are exposed to 13 food advertisements every day and $> 40,000$ advertisements per year on television alone.¹¹⁶ It is difficult to measure the direct impact on CVH of eliminating marketing of unhealthy foods and beverages to children (or conversely using brands and characters to market only healthy foods). Systematic reviews have shown some positive benefit of such interventions on the quality of children's diets, but larger studies in

more diverse populations are needed for better assessment of health impact.^{117,118}

5. Establish strong regulation to support and strengthen local school wellness policies.

Although in principle a promising strategy, there is little evidence to date for the health impact of local school wellness policies. Most schools are implementing the federal law, but policies are weak with little transparency.¹¹⁹ A final school wellness policy rule that would increase transparency and accountability had not been released by the US Department of Agriculture as of December 2015.

6. Promote healthy food service and food procurement on government property.

Currently, federal, state, and local governments employ ≈22 million people: State governments employ 5.3 million people; local governments, 13.8 million people; and the federal government, 2.7 million people.¹²⁰ There are 9 million veterans and employees reached with the Department of Veterans Affairs guidelines with >37 million meals served a year and 35 000 vending machines within that agency.¹²¹ More than 100 million Americans eat from food service meals each day in which government guidelines or the AHA's standards may be implemented by large employers, entertainment venues, faith-based organizations, recreational centers, and hospital systems.^{121,122} In this emerging policy area, much more research is needed to determine the effectiveness of implementation and the health impact of procurement standards and food service guidelines.

7. Secure public funding for healthy food financing initiatives and healthy corner store initiatives.

This policy initiative is targeted at vulnerable communities. A 2013 report from Policy Link and The Food Trust found that urban communities of color and rural communities, especially Native American reservations, lacked access to healthy food, especially compared with higher-income and white neighborhoods.¹²³ Although a significant amount of public and private investment has been made in healthy food financing initiatives at the federal, state and local levels, most of the research to date has addressed the amount of economic investment brought into underserved neighborhoods, not the impact on consumer purchasing behavior or health benefits.¹²³ However, in a recent RAND study,¹²⁴ residents' diets improved in some ways (fewer calories, less added sugar, fewer empty calories from saturated fat, added sugars, and alcohol) in an intervention community where a supermarket had been built, but there was no improvement in intake of whole grains or fruits and vegetables. Additionally, the dietary improvements were not necessarily linked to the presence of the store itself but may have resulted from the campaign to bring the supermarket to the community, which had raised consumer awareness. Residents in the intervention community had a better feeling about food access in their community. Much more research is needed to determine whether there is a health benefit in bringing supermarkets, grocery stores, or healthy corner

stores to underserved communities and to assess whether there is actually a marked increase in healthy food access and that consumers are purchasing and consuming healthier foods and beverages.

8. Advocate for improved food labeling and updating the Nutrition Facts Panel.

The Nutrition Facts Panel is one of the most prominent sources of nutrition information on prepackaged foods and is perceived by consumers as a highly credible source of information with wide reach across the population.¹²⁵ Systematic review has shown consistent a link between use of labels and healthier diets. However, such use is less frequent among some groups, for example, children, adolescents, and obese older adults, and understanding and appropriate use of the nutrition information are limited among less educated consumers.^{125–127} In summary, there is some link between the use of the Nutrition Facts Label and healthier diets, but there are not yet conclusive data on CVH outcomes.

9. Support application of the Dietary Guidelines for Americans to federal feeding programs.

Higher dietary quality consistent with the Dietary Guidelines for Americans has been shown to decrease the risk of CVD and other chronic diseases.^{111,128,129} There is a great population health benefit with adequate implementation of the Dietary Guidelines for Americans across federal feeding programs. For example, 30.3 million students in school are served by the school meal program^{129a}; 9 million women, children, and infants are fed by the Supplemental Nutrition Assistance Program for Women, Infants, and Children^{129b}; 3.4 million children are fed 1.9 billion daily meals and snacks by the Child and Adult Care Food Program^{129c}; and >43 million people are served by the Supplemental Nutrition Assistance Program,^{129d} representing a sizeable portion of the US population.

Future policy development should consider linking provision of any amount of federal, state, and local reimbursements by programs/organizations to a requirement that all foods and beverages provided by those programs or sold by those organizations meet the Dietary Guidelines for Americans. Additionally, health-related programs receiving federal monies should have education programs to teach healthy lifestyle behaviors and should evaluate the effectiveness of any of their lifestyle interventions. Currently, <1% of children meet all 5 criteria for a healthy diet, although it is recognized that the bar is set high, for example, for fruit and vegetable intake, for their size and caloric needs. This fact calls attention to an urgent need for policy implementation to improve CVH beginning early in life. We turn now to specific indicators of a healthy dietary pattern.

Fruits and Vegetables

Health benefits associated with increasing consumption of fruits and vegetables include lower risks of CVDs, stroke, and cancer among adults and children.^{130,131} Accordingly, the AHA has established several policy priorities related to intake of fruits and vegetables. With proper planning,

increased intake of fruits and vegetables can be accomplished without increasing overall consumption of calories or increasing costs. It is estimated that \$17 billion in annual national medical costs could be saved if Americans followed dietary recommendations for fruit and vegetable consumption.¹³²

1. Advocate for adequate funding and robust implementation of the Fresh Fruit and Vegetable Program.

The Fresh Fruit and Vegetable Program operates in selected low-income elementary schools in the 50 states, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands and currently provides \$158 million in assistance to state agencies.¹³³ States then select schools to participate on the basis of criteria in the law, including the requirement that each student receives between \$50 and \$75 worth of fresh produce over the school year.¹³³ Depending on enrollment and the allotment spent on each child, the US Department of Agriculture estimated that the expanded assistance helped schools serve an additional 600 000 to 950 000 students in the 2011 to 2012 school year.¹³³ Research has shown that the Fresh Fruit and Vegetable Program increases fruit and vegetable consumption in children^{134,135} and can decrease obesity in those who participate.¹³⁶ An independent evaluation found that the Fresh Fruit and Vegetable Program increased students' average fruit and vegetable consumption by 15% in participating schools but did not increase overall caloric intake, suggesting that children replaced less healthy foods in their diets with fruits and vegetables.¹³⁷

2. Increase the use of electronic benefit transfers at farmers' markets.

There is no specific research on the impact of electronic benefit transfers use and CVH. However, on the basis of current evidence, price reduction policies would have favorable relative effects on non-Hispanic whites and blacks, providing a way to reach areas without easy access to fresh foods^{138–142} and helping to create equitable food systems.¹⁴³

3. Increase appropriations for implementation of school and community gardens.

Systematic reviews have shown that garden-based intervention programs in schools and communities have the potential to increase fruit and vegetable intake in children and to increase their willingness to taste fruits and vegetables. However, empirical health outcome data are not currently available.^{144,145} Funding is typically modest and targeted to low-income communities, addressing food insecurity, nutrition education, and healthy food access. The Farm to School program, housed in the US Department of Agriculture Food and Nutrition Service, was authorized in the 2010 Healthy Hunger Free Kids Act and to date has funded 221 projects totaling \$15.1 million.¹⁴⁶ There are other federal, state, and local government sources of grant funding for school and community garden programs,^{146a} as well as funding from industry, foundations, nonprofit organizations, and crowd sourcing.

4. Ensure adequate nutrition services funding and protect and preserve the integrity of the Women, Infants, and Children food packages.

A systematic review demonstrated improved dietary intake in Women, Infants, and Children participants and increased availability of healthier foods and beverages in authorized Women, Infants, and Children stores.¹⁴⁷ Further research is needed on the CVH impact of this policy and on the uptake of breastfeeding.

To achieve better access to a plant-based eating pattern, future advocacy may target the food system and food production, for example, supporting farmers who grow fruits and vegetables. Without adequate supply, meeting the recommended intake of fruits and vegetables would not be possible, and the cost to consumers would be prohibitive.

Sugar-Sweetened Beverages

In a systematic review and meta-analysis of prospective cohort studies and randomly controlled trials, researchers demonstrated that SSB consumption resulted in unwanted weight gain in children and adults.¹⁴⁸ Consumption of SSBs is currently the single largest category of caloric intake in children, accounting for 10% to 15% of their total daily calories.^{149–151} Data from the 2010 National Youth Physical Activity and Nutrition Study found that high school students consumed ≥ 1 SSBs daily, including regular soda (25%), a serving of a sports drink (16%), and another SSB (17%).¹⁵² In a trend and cross-sectional analysis from the NHANES for the period from 1999 to 2000 through 2007 to 2008, the prevalence of heavy SSB consumption (≥ 500 kcal/d) increased among children (4% to 5%) but decreased among adolescents (22% to 15%) and young adults (29% to 20%).¹⁵³ Soda was the most heavily consumed SSB in all age groups except children.

Although the prevalence of soda consumption decreased, heavy sports/energy drink consumption tripled (4% to 12%) among adolescents.¹⁵³ Notable for targeted SSB interventions, black children and adolescents had higher prevalence odds ratios of heavy fruit drink consumption (odds ratio, 1.71 and 1.67, respectively) than their white counterparts.¹⁵³ Low-income children had higher odds of heavy total SSB consumption (odds ratio, 1.93) and higher caloric intake from total SSBs and fruit drinks (by 23 and 21 kcal/d) than their high-income counterparts.¹⁵³ In addition, among adults, low versus high socioeconomic status was associated with higher odds of heavy consumption of total SSBs, soda, and fruit drinks.¹⁵³ Whereas recent evidence suggests that intake of SSBs has declined in certain segments of the population, this is not true across the entire population.^{154,155} Taken together and viewed in the context of emerging research on SSBs, the disparity in heavy consumption of SSB types across racial/ethnic subpopulations and higher odds of heavy SSB consumption among low-socioeconomic status populations indicate the need for targeted interventions within environmental and policy initiatives designed to improve dietary patterns of all US children, adolescents, and adults.

Both environmental and policy initiatives promote healthy beverage consumption.¹⁵⁶ Individuals are influenced by daily-life exposures in their environment¹⁵⁷ that influence patterns

of eating behavior, including the selection and consumption of food.^{158–160} The AHA has advocated for several policy initiatives in this area.

1. Support significant increases in excise taxes on SSBs.

A systematic review of some 160 studies found that food consumption away from home was most responsive to price changes.¹⁶¹ A price increase in soda and away-from-home foods was found to be associated with lower caloric intake, healthier weight, and decrease diabetes mellitus risk.¹⁶² In another study, investigators suggested that a 10% price increase can decrease consumption of these foods and beverages by 8% to 10%.¹⁶³ Food choices by vulnerable populations, those that have the greatest negative health disparities (ie, children and adolescents, low-income and less well-educated individuals), are particularly price sensitive.^{164–166} One modeling study showed that an excise tax would reduce SSB consumption by 20% and mean BMI by 0.16 units among youth and 0.08 units among adults in the second year for a cost of \$3.16 per BMI unit reduced.¹⁶⁷ It also would avert a loss of 100 000 disability-adjusted life-years, produce a gain of 871 000 quality-adjusted life-years, result in \$23.6 billion in healthcare cost savings, and generate \$12.5 billion in annual revenue.¹⁶⁷ A federal excise tax on sugary beverages passed in Mexico led to a 12% reduction in purchases, with the greatest reductions seen in lower socioeconomic groups.^{167a} The Congressional Budget Office estimates that a tax of 3 cents per 12-oz drink would raise just under \$5 billion a year, which could be spent on obesity prevention programs or education campaigns.¹⁶⁸

2. Remove SSBs from all restaurant children's meals.

Because children consume about a third of their calories from away-from-home meals and studies show that restaurant foods typically contribute higher calories and less nutritional value than foods prepared at home,¹⁶⁹ this policy priority has the potential to affect the quality of children's diets. In 1 study, implementing healthy children's meals increased milk and juice consumption and decreased orders of soda.¹⁷⁰ In a follow-up study, changes were sustainable.¹⁷¹ Other initiatives have shown similar success.^{172,173} However, few such intervention studies have been published.

3. Remove taxes levied on bottled and vended drinking water.

This is such a new policy approach that there is not yet any evidence on CVH impact. Policy makers may be reluctant to consider this initiative because of the loss of revenue; however, future research is needed to determine whether any subsequent health benefit outweighs revenue losses.

4. Ensure that water is free, clean, and accessible in the school and community setting.

To assess the strength of the evidence to date on ensuring access to clean water at the community level, the AHA policy research staff used the QuIC Evidence Assessment method as developed by the CDC, which uses the best available evidence for a given component of a policy to classify it on a 4-part grid: Evidence Quality and Public Health Impact are represented as the 2 axes,

and the categories of emerging, promising impact, promising quality, and best represent in turn the 4 quadrants.*†‡ To determine the best available evidence for this policy, the staff searched PubMed, MEDLINE, Google Scholar, and Cochrane for empirical and nonempirical research to date with the following search terms: public water access, free water access, clean water access, public water fountains, public water access health, public parks water, public water availability, and free community water access. The evidence gained from the cited research was used to assess potential policy impact.^{174–185} For this policy, the Evidence Quality Score was 28 and the Public Health Impact Score was 15. This result placed the impact of ensuring clean water access at the community level in the category of promising quality.

5. Support SSB warning labels.

Because this is a new initiative, there is a lack of scientific evidence specifically related to warning labels on SSBs. Some public health advocates and policy makers have drawn a comparison to warning labels on tobacco and alcohol products, for which there is abundant literature evaluating effectiveness. From this literature, evidence suggests that a health warning label is potentially a prominent source of health information and an effective tool for increasing awareness, changing attitudes, and changing behavior.^{186–188} However, the impact of a health warning label depends on its design and size and the social norms surrounding the underlying behavior.¹⁸⁹ Smaller textual labels do not have as strong an impact as larger labels or graphic labels.^{186,189} Graphic labels have a greater impact than text-only labels, and graphic labels that elicit strong emotional responses are most effective.¹⁸⁹ Much more research is needed on the efficacy of SSB-specific warning labels, the impact on consumer purchasing, industry response, and whether there is a shift to drinking diet beverages or healthy choices such as water.

Sodium

The deleterious health effects of excess dietary sodium in children, adolescents, and adults are extensively documented, and the benefits of reduced sodium intake are likewise well known. Excess intake of sodium causes elevated BP, a major risk factor for CVD, stroke, and kidney disease.¹⁹⁰ Independently of its effects on BP, excess sodium has adverse effects on the heart, kidneys, and arteries.¹⁹¹ The research supports the AHA's advocacy of population-wide

*The Evidence Quality Score assesses the level of evidence quality for the overall evidence base on the basis of the study types used, the sources providing the evidence, and the amount of evidence derived from practice, theory, and research. This score ranges from 1 to 40, with 40 being the highest level of quality.

†The Public Health Impact Score assesses the level of evidence of public health impact related to the use of the component, as suggested by the overall evidence base. Impact level is based on actual or suggested outcomes related to health, equity, efficiency, and transferability. This score ranges from 1 to 40, with 40 being the highest level of impact.

‡Component evidence categories include the following: Best, the components of which have higher levels (a score >20) of both quality and impact; Promising Quality, the components of which have higher levels of quality but lower levels of impact; Promising Impact, the components of which have higher levels of impact but lower levels of quality; and Emerging, the components of which have lower levels of both quality and impact.

sodium reduction efforts, including support of the Million Hearts Initiative and its strategy to reduce population-level sodium intake through community-level programs. The AHA recommends a sodium upper limit of 1500 mg/d. Other national (US Department of Agriculture, Institute of Medicine)^{107,192} and global (World Health Organization) agencies¹⁹³ similarly recommend reducing daily sodium intake but differ on specific goals, ranging from 1200 to 2300 mg/d. Nationally representative data from NHANES find highly excessive intakes of sodium in US children, adolescents, and adults.¹⁹⁴ Current estimated sodium intakes in US adults approximate 3400 mg/d exclusive of table-added salt and have not improved since the mid-1990s. Average sodium intakes for children 2 to 5, 8 to 12, and 13 to 18 years of age approximate 2300, 3300, and 3400 mg/d, respectively.¹⁹⁴ Of note, >75% of Americans' sodium intake comes from processed foods, which are also often calorie dense.¹⁹⁵ Although behavioral interventions help individuals reduce sodium intake, these approaches have not been successful in decreasing population-wide sodium intake.^{196,197} Availability of and access to affordable healthy (reduced sodium) foods are central to population-wide efforts. Environmental and policy approaches are needed to create optimal food environments for all Americans.

Several current AHA policy priorities focus on reducing sodium in the US food supply. The AHA supports the inclusion of sodium consumption standards in school nutrition programs, food marketed to children and youth, and foods purchased by employers and government programs. The AHA also advocates for improved food labeling and menu information to help individuals understand how much sodium they are consuming. In addition, multisector efforts involve food manufacturers, food processors, and restaurant industries to reduce population-level dietary sodium intake. These efforts include working with government agencies and the food industry to implement sodium reduction via procurement policies and lower sodium standards in government-subsidized food programs.

1. Support FDA voluntary standards for sodium reduction and revision of the Nutrition Facts Panel.

In modeling exercises and intervention research across a number of countries, researchers strongly suggest that population-based strategies of sodium reduction are cost-effective and potentially impactful in terms of CVD and total mortality.^{191,198,199} Because the current levels of dietary sodium are so high, a combination of personal/clinical interventions, community-based changes, and food industry reforms (eg, reduced sodium in bread) is needed to achieve estimated potential population benefits.²⁰⁰ Changes in the supply of dietary sodium in the macroenvironment, especially collaborations with and regulatory changes in the food industry, will have the largest impact on public health.^{199,201–203} If the US population moved to an average sodium intake of 1500 mg/d, there would be a 25.6% decrease in high BP (HBP) and a \$26.2 billion savings in annual healthcare spending.²⁰³ Even getting the US population to 2300 mg has been estimated to save \$18 billion in healthcare costs annually and could lead to

overall savings from reduced CVD morbidity and mortality of \$32 billion annually.²⁰⁴

Other AHA Diet Metrics (Not Prioritized Although Addressed Within Policy Approaches to the Overall Dietary Pattern)

1. Fish/seafood.

The cardiovascular benefits of fish/seafood and marine omega-3 fatty acids have been the topic of extensive reviews.^{205–207} Dietary (not supplemental) fish or fish oil consumption reduces CHD mortality, including fatal myocardial infarction and sudden cardiac death, in populations with and without established CVD.²⁰⁷ Fish consumption (1–2 servings per week) reduced the risk of coronary death by 36% and total mortality by 17% in a pooled analysis of prospective studies and randomized trials.²⁰⁶ The AHA has provided guidance for almost 2 decades for the consumption of fish/seafood and marine omega-3 fatty acids.¹⁰⁶ From a policy perspective, the AHA addresses seafood consumption through broader systemic approaches to diet quality, including nutrition standards for schools and workplaces and in government feeding programs. In addition, programs are needed that make fish/seafood widely available at an affordable price.

2. Whole grains.

As summarized by the 2015 US Dietary Guidelines Advisory Committee report, whole grains are those “foods made from the entire grain seed, usually called the kernel, which consists of the bran, germ and endosperm. If the kernel has been cracked, crushed or flaked, it must retain nearly the same relative proportions of bran, germ and endosperm as the original grain in order to be called whole grain.”¹¹² The vast majority of the US population consumes less than the recommended amounts of whole grains but instead has a high intake of refined grains, including white flour-based products, white rice, and degermed cornmeal. Detrimental aspects of refined grains, including added fats, sugar, and sodium, often accompany these foods; however, because they are typically enriched with folic acid (white flour), iron, and B vitamins, inclusion of some of these foods can benefit overall nutritional status.¹¹² Only ≈19% of the US population, including all ages and both sexes, meet the recommendation for limited intake of refined grains; the vast majority (>70%) exceed this intake, especially boys and girls 4 to 8 years of age and girls 9 to 13 years of age.¹¹²

On the other hand, recommended amounts of dietary fiber are underconsumed by the majority of the population. Dietary fiber is derived not only from whole grains but also from fruits, vegetables, beans, peas, legumes, nuts, and other plant-based foods. The 2015 US Dietary Guidelines Advisory Committee reported less than the recommended intake of all these foods, and consequently inadequate dietary fiber intake, by the majority of the population. Dietary fiber is associated with reduced risk of CVD, including lower BP and low-density lipoprotein cholesterol (LDL-C). Recommended intake is 14 g fiber/1000 kcal or 25 g per 2000-kcal diet.¹⁰⁷

Systemic policy approaches such as nutrition standards in schools and early child care, as well as nutrition standards for government food purchasing in feeding programs or for food

service, can increase whole grains in foods that are offered, sold, and served.

Total Cholesterol (Not Prioritized, Although Implied Within Physical Activity and Dietary Policies)

Blood cholesterol has a well-established causal role in the development of atherosclerosis and clinical cardiovascular events.^{208–211} Lifetime exposure to elevated total cholesterol and LDL-C levels constitutes a major factor in the risk of cardiovascular events.^{2,212–214}

Writers of the “2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults” found that statin therapy reduced atherosclerotic CVD (ASCVD) risk across the spectrum of LDL-C levels and recommended initiating statin therapy at 40 to 75 years of age on the basis of the level of ASCVD risk in those with LDL-C >190 mg/dL.²¹⁵ Earlier cholesterol guidelines that relied on LDL-C treatment thresholds perform less well than the 2013 ACC/AHA cholesterol guideline in identifying high-risk patients expected to benefit from statin therapy.^{216–218}

The 2013 ACC/AHA guideline recommends treating all individuals 40 to 75 years of age with LDL-C \geq 190 mg/dL or calculated risk >7.5% over 10 years, patients with clinical ASCVD, and those with diabetes mellitus with statin therapy. Additional LDL-C–lowering nonstatin therapy is also recommended, if needed, to reduce both short-term and lifetime risk of ASCVD.²¹⁵ LDL-C \geq 190 mg/dL resulting from genetic causes is a strong risk factor for the premature onset of ASCVD. Healthy lifestyle habits are recommended for all individuals with and without genetic hypercholesterolemia. Avoidance of smoking and control of other risk factors are essential. For LDL-C \geq 190 mg/dL, drug treatment to lower LDL-C should be started as soon as possible in adults 40 to 75 years of age.²¹⁵

The “Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents: Summary Report” by the National Heart, Lung, and Blood Institute Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents recommends that screening for genetic causes of hypercholesterolemia should begin by 2 years of age if there is a family history of premature ASCVD, known parental history of hypercholesterolemia, total cholesterol >240 mg/dL, or presence of diabetes mellitus, hypertension, smoking, BMI \geq 95th percentile for age, or a moderate- or high-risk medical condition.²²⁰ Universal lipid screening should begin at 9 to 11 years of age and be repeated at 17 to 21 years. Once a child or parent with LDL-C \geq 190 mg/dL is found, effort should be undertaken to screen relatives for elevated cholesterol levels (cascade screening).²²²

For adults, according to the 2013 ACC/AHA guidelines, assessment of ASCVD risk should begin by 21 years of age and should be repeated every 4 to 6 years if statin therapy is not started.^{212,215} This screening provides the opportunity to identify individuals with LDL-C \geq 190 mg/dL, to assess 10-year and lifetime risk of ASCVD, and to counsel on healthy lifestyle habits and control of risk factors.

Once it has been determined that a patient has the potential for a net benefit from statin therapy and statin therapy is initiated, the 2013 ACC/AHA guideline recommends regular monitoring through patient-clinician discussion and measurement of fasting lipids to assess long-term adherence to lifestyle and drug therapy.²¹⁵ Evidence shows that treatment initiation and long-term adherence to statin therapy are suboptimal even among high-risk patients.^{223,224} Effective, multifactorial programs to address nonadherence exist but have yet to be broadly implemented.²²⁵ Components of these programs include improving understanding of the treatments, providing counseling and accountability, ensuring availability of strategies and tools to encourage patient self-monitoring, and increasing the affordability of medications.

Screening, statin treatment, cholesterol control, and long-term adherence are less successful in high-risk women and in nonwhite patients than among others.^{224,226–230} Lower socioeconomic status, limited healthcare access, enrollment in lower-performing health plans, and dependence on Spanish language appear to account for some of these disparities in the health care of blacks and Hispanics.^{227–229}

Policies that improve access to prevention and treatment of hypercholesterolemia include those discussed above under healthy diet and physical activity, as well as those relating to healthcare access, quality, and affordability. The latter aspects include expanding coverage for groups not adequately covered by the ACA, reimbursement and minimal copays for preventive services, and the AHA’s partnership with the Million Hearts Initiative.

Blood Pressure

HBP is a major risk factor for CVD and stroke.²³¹ In 2010, the overall death rate (age adjusted) for HBP was 18.8 per 100 000 population. Death rates were 17.2 per 100 000 for white men, 15.0 per 100 000 for white women, 50.2 per 100 000 for black men, and 37.1 per 100 000 for black women.²³² The estimated combined direct and indirect cost of HBP in 2010 was US \$46.4 billion (unpublished National Heart, Lung, and Blood Institute tabulation of Medical Expenditure Panel Survey data). Although recent discussions have focused on the details of BP control targets and the relevant evidence,^{233,234} it is well established from clinical and community trials that controlling HBP can reduce cardiovascular morbidity and mortality, reduce stroke incidence, slow the progression of kidney disease, and lower overall mortality.²³⁵ The AHA considers an ideal BP to be a systolic BP <120 mmHg and diastolic BP <80 mmHg.

The AHA’s BP control policy focuses on 4 general categories of evidence-based strategies, as well as supporting the BP control targets of the Million Hearts Initiative. Effective interventions target healthcare policy makers, insurers, pharmaceutical concerns, healthcare providers, workplaces, and patients. Current policy targets are the following.

Increase Access to Appropriate Treatments

The AHA has adopted policy goals related to expanding and protecting access to affordable, adequate, and transparent insurance coverage; however, the relationship between insurance status and health outcomes is inconsistent. There is considerable uncertainty about a population-wide causal

relationship between insurance coverage and health status, given multiple contributing factors.²³⁶ There is some evidence of increased mortality among those without insurance²³⁷ and relatively lower mortality in populations with greater insurance coverage rates than in those with lower coverage rates.²³⁸ There is also evidence that insurance coverage is correlated with health indicators other than mortality. In 1 study, those without health insurance had poorer short-term outcomes after the diagnosis of a chronic condition than those with insurance.²³⁹ In another study, researchers documented significantly higher rates of self-reported excellent or very good health in populations with greater compared with lower insurance coverage rates.²³⁸ Insurance coverage can improve the health of some population subgroups, some of which have been the targets of coverage expansion policies.²³⁶ The AHA supports expanded insurance coverage for populations not adequately covered by the ACA (eg, those in states that have not expanded Medicaid eligibility). There is evidence that increased rates of insurance coverage analogous to that afforded by the ACA are related to lower mortality.²³⁸ The AHA supports policies that seek to eliminate health insurance disparities that affect minorities. In states that have not expanded Medicaid, 40% of uninsured blacks who qualify are left without coverage compared with 24% of qualified Hispanics and 29% of qualified whites.²⁴⁰ Minority Medicare beneficiaries are less likely to receive Part D prescription drug benefits than whites, with the highest disparity affecting Spanish-speaking Latinos.²⁴¹ The AHA supports reimbursement and minimal copays for preventive services.²⁴²

The impact of expanded, affordable insurance and improved access to health care on HBP and its sequelae is uncertain. If increased coverage allowed 17 million more Americans to successfully control their HBP, it is estimated that 146 970 BP-related heart attacks and 51 200 strokes could be prevented each year with \$2.92 billion in cost savings.²⁴³

Ensure Continued Funding and Implementation of the Million Hearts Initiative

The AHA developed or supported public health programs targeting HBP control and is committed to policies that ensure their continued funding and implementation, including the US Department of Health and Human Services Million Hearts Initiative. This program seeks to prevent 1 million heart attacks and strokes by 2017 and includes several goals related to BP control, including increasing the percentage of people with controlled HBP; better identifying people with HBP who are not yet diagnosed; enhancing individuals' ability to control their HBP; increasing measurement and reporting of HBP control by healthcare systems, professionals, communities, and others; and decreasing the nation's sodium intake. Some of the activities to support these objectives are community efforts to reduce sodium in the food supply, public education campaigns to help Americans make healthy food choices and decrease tobacco use, and use of health information technology and quality improvement initiatives to standardize and improve the delivery of care for HBP. The overall impact of the Million Hearts Initiative remains to be determined.

Monitor Drugs and Devices, Including Research on the Approval Process and Timeliness, Integration of Innovations Into Delivery Systems of Care, and Medication Adherence

The AHA monitors issues related to drugs and devices used to treat HBP. Poor medication adherence is a significant issue in the United States, where it results in 33% to 69% of medication-related hospital admissions at a cost of ≈\$100 billion a year.²⁴⁴ An estimated 46 000 deaths could be avoided each year if 70% of patients with HBP received the treatment they need.²⁴⁵ The risk of hospitalization, rehospitalization, and premature death among patients with HBP is >5 times higher with poor adherence than among those who adhere to their treatment.²⁴⁶ Further policy development is needed to address medication adherence more effectively.

Drug formularies dictate particular pharmaceuticals that may be dispensed or reimbursed within a given system of care. Therefore, formularies influence prescribing patterns, and changes to formularies can potentially affect patient care. In 1 study, insurance-driven formulary changes resulted in adverse medical outcomes, decreased satisfaction with health care, and an increased burden on physician practice,²⁴⁷ especially under government insurance programs. Formulary changes involving hypertension medications were among the most problematic.

As of 2013, nearly 90% of the US population owns some sort of mobile device.²⁴⁸ Use of mobile BP monitors and medication reminders reduces hypertension rates.^{249–252} However, long-term efficacy of such devices and optimal strategies for their integration into delivery systems of care, including reimbursement strategies, are still to be determined.

Integrate the AHA's BP Algorithm Into Delivery Systems of Care

A recent science advisory from the AHA in conjunction with the ACC and the CDC underscored the value of treatment algorithms for effective HBP control.^{253,254} Results from the landmark Systolic Blood Pressure Intervention Trial (SPRINT)²⁵⁵ will continue to drive policy toward HBP prevention, treatment, and control. SPRINT found 43% fewer CVD-related deaths in patients who were treated with a target systolic BP of 120 mm Hg instead of the 140 mm Hg that has long been considered the appropriate target. Additionally, there were 27% fewer deaths resulting from any cause among patients in the lower BP target group; the rate of fatal or nonfatal heart attack, acute coronary syndrome, stroke, or heart failure was lower by 25%; and there were 38% fewer cases of heart failure in the more aggressively treated group. There were, however, higher rates of acute kidney injury and other adverse effects, offsetting these benefits to a corresponding degree. Further policy work will support efforts that make integration of any revised treatment goals a standard of care within the US healthcare delivery system.

Fasting Plasma Glucose (Not Prioritized, Although Implied Within Dietary and Physical Activity Policies)

Fasting plasma glucose is a CVH factor that serves as an indicator of diabetic and metabolic health status. Ideal (<100 mg/dL), intermediate (100–125 mg/dL or treated to goal), and poor (≥126 mg/dL) levels correspond to previously defined nondiabetic, prediabetic, and diabetic status, respectively.¹

An AHA/American Diabetes Association scientific statement notes that glycated hemoglobin A_{1c} is the preferred diagnostic test for type 2 diabetes mellitus, with levels of <5.7%, 5.7% to 6.4%, and ≥6.5% corresponding to the same respective levels of risk as fasting plasma glucose.²⁵⁶ The statement also emphasizes the importance of management of concomitant vascular risk factors for cardiovascular prevention in individuals with diabetes mellitus. Another AHA scientific statement addresses the management of cardiovascular risk factors in youth with diabetes mellitus, also focusing on strategies for reducing the excess risk.²⁵⁷

The prevalence of ideal fasting plasma glucose based on NHANES data from 2011 to 2012 was 85.3% at 12 to 19 years of age, 74.7% at 20 to 39 years of age, 52.4% at 40 to 59 years of age, and 31.3% at ≥60 years of age.¹⁴ The progressive development of prediabetes and diabetes mellitus from adolescence throughout adulthood is similar to other CVH metrics (ie, BP and cholesterol) in which CVH declines throughout the life course. The prevalence of prediabetes and diabetes mellitus increased from 9% to 23% between 1999 and 2007 among those 12 to 19 years of age, equivalent to a decline in ideal fasting blood glucose from 91% to 77% over this 8-year period.¹⁸ Promotion and preservation of ideal fasting plasma glucose from childhood appears to be an important strategy to improve the CVH of the population.

On the basis of NHANES data for 2009 to 2012, among adults, the estimated prevalence of diabetes mellitus in the United States was 21 100 000 physician-diagnosed cases (8.5%), 8 100 000 undiagnosed cases (3.3%), and 80 800 000 cases of prediabetes (35.3%) in the United States.¹⁴ Non-Hispanic blacks and Hispanics have a substantially greater prevalence of prediabetes than whites, reflecting an important race/ethnic CVH disparity. Approximately 600 000 hospitalizations and healthcare costs of \$245 billion were attributed to diabetes mellitus in 2012.²⁵⁹

Type 2 diabetes mellitus is preventable. For example, the Diabetes Prevention Program found reductions in diabetes mellitus in overweight and obese patients treated with either lifestyle intervention or metformin.²⁶⁰ Lifestyle intervention was more effective, reducing the incidence of diabetes mellitus by 58%. Evidence that healthy diet, adequate physical activity, and avoidance of unwanted weight gain are critical for diabetes mellitus prevention implies that maintenance of healthy blood glucose may be achieved through the policies and practices addressing these behaviors that are currently on the AHA policy agenda. The same targets underlie management of already-established diabetes mellitus in children and adults.^{256,257} For those with diabetes mellitus, cardiovascular events and stroke can be lessened in diabetics with lipid-lowering therapy and tight BP control.²⁵⁶

CVD and Stroke Mortality

Systems of Care/Acute Care

Improve Care for ST-Segment–Elevation Myocardial Infarction, Stroke, Emergency Medical Services, and Out-of-Hospital Cardiac Arrest

Supporting and expanding comprehensive, coordinated systems of care for acute myocardial infarction and stroke is of

vital importance. It is critical that the AHA, together with other organizations, continue to identify, define, and implement exemplary local, regional, and national systems of care for acute cardiovascular events and stroke. Providing communities, emergency medical services agencies, clinicians, and health systems with proven tools, algorithms, strategies, programs, and other best practices, along with expertise and technical assistance for implementing and improving systems of care, is essential. Coordinated systems of care can make significant contributions to improving the care of patients with acute ST-segment–elevation myocardial infarction and for reducing the devastating effects of stroke.⁹

It is estimated that nearly half of Americans live >1 hour away from a primary stroke center, so telemedicine can help to support an effective stroke care system.²⁶¹ The use of telemedicine is very effective in the evaluation and treatment of acute stroke, including significantly increasing the use of appropriate treatment in rural and neurologically underserved areas.²⁶² Preliminary studies using real-time telemedicine links in emergency medical services vehicles allow medical personnel at a primary stroke center or comprehensive stroke center to evaluate the patient and assist in making emergent triage decisions.²⁶³ Telemedicine is also useful for providing stroke consultation for patients with a subacute stroke and patients already hospitalized with stroke or transient ischemic attack, supplementing existing stroke care processes, designing appropriate secondary stroke prevention regimens, determining rehabilitative needs, and planning disposition and reintegration into community and home environments for poststroke care.^{10,264} An AHA advocacy priority continues to be expanding policies to allow the greater use of telemedicine services such as interstate licensing agreements and expanded coverage beyond rural or underserved areas.

Reform Payment and Delivery Systems

The AHA has convened an expert panel to inform its efforts on this important area of policy development, assessing the evidence base as it continues to evolve as different payment and delivery models are tried in the healthcare marketplace.

Explore Evidence-Based Opportunities for Integration of Health Information Technology and Mobile Technology in Delivery Systems of Care and Support Clinical Registries

Improving care coordination models, ensuring optimal use of health information technology, and exploring evidence-based opportunities for the integration of mobile health technologies into delivery systems of care are also important priorities with an evolving evidence base. The Agency for Health Research and Quality reports that clinical decision support, the provision of clinical knowledge and patient-specific information to help clinicians and patients make decisions that enhance patient care, has potential to improve quality and reduce costs by increasing adherence to evidence-based practices.²⁶⁵ These tools may enhance the use of evidence-based therapies for primary and secondary prevention in every care setting.

Improve the Quality and Comprehensiveness of Healthcare Data Reporting and Increase the Use of Clinical Registries

Clinical registries and performance improvement systems play a vital role in measuring and improving the quality of cardiovascular and stroke care delivered in the in-hospital,

post-hospital transition, and outpatient settings. Use of performance improvement registries is associated with improvements in quality of care and clinical outcomes over time.²⁶⁶ For example, as a result of the Get With The Guidelines (GWTG)–Stroke program, which uses a registry to collect and feed back information, participating hospitals had improvement in their adherence to stroke performance measures.²⁶⁷ Additionally, the AHA has supported the use of state-based registries to measure and track acute stroke care and to improve stroke care quality. One example is support of appropriations both for the CDC’s Paul Coverdell National Acute Stroke Registry and for the CDC’s work to provide funding and technical assistance to states to develop, implement, and enhance data collection systems for acute stroke. Those data can be used to guide quality improvement programs for acute stroke care, benefiting patients.²⁶⁸ CDC estimates that from 2005 through mid-2015, >550 000 patients have benefited from hospital participation in the Paul Coverdell National Acute Stroke Registry program.²⁶⁹

Clinical registries also support quality and safety evaluation by monitoring adverse events related to particular therapies, drugs, or devices^{270,271} and examining provider adherence to safety protocols and best practice guidelines.²⁷² Data collected via a clinical registry can help to identify opportunities to improve care and catalyze systems changes on a national basis to promote more timely and effective care. National data have shown disparities in guideline-recommended timely administration of tissue-type plasminogen activator for acute ischemic stroke, with little change over 7 years. A national initiative, Target: Stroke, was organized to address this issue. As a result, there was marked improvement in door-to-needle times for tissue-type plasminogen activator administration, more eligible patients were treated, and substantial improvements in clinical outcomes were seen.²⁶⁷ Data collected via a registry can also stimulate systems changes on a regional or statewide basis to promote a more comprehensive and coordinated approach to care. Regional participation in quality improvement programs that use a clinical registry can help identify problems in the system of care so that corrections and improvements can be made. Greater participation in innovative programs such as the AHA’s Heart 360, AHA/American Stroke Association’s GWTG program, and the AHA/American Diabetes Association/American Cancer Society Guideline Advantage Program should also be encouraged and incentivized.

Clinical registries are also an efficient way to collect information on healthcare trends, to assess how elements of the healthcare system are functioning, and to better understand the prevalence and impact of disease. Clinical registries can be used to assess disease progression, to evaluate treatments, and to monitor treatment outcomes and adverse events.^{273,274} They can also evaluate trends in healthcare use and the provision of medically necessary care (including underuse, overuse, and misuse),²⁷⁵ monitor the impact of prevention efforts and public health awareness campaigns,²⁷⁶ analyze referral and diagnosis patterns, describe patient population demographics and provider characteristics, and track the incidence of health events and recurrent events.²⁷⁷

Clinical registries play an essential role in monitoring the healthcare needs of and the services used by patient populations often underrepresented in epidemiological studies and clinical trials, including racial and ethnic minorities, women,²⁷⁸

the elderly,²⁷⁹ individuals with multiple comorbidities,²⁸⁰ and individuals with rare diseases. Using data from a clinical registry, researchers can identify and evaluate healthcare disparities within a patient population, examine underrepresented populations and their access to healthcare services, investigate disease progression and healthcare use in a particular sub-populations, and evaluate treatment costs. Registries, as demonstrated by the experiences of the GWTG–Coronary Artery Disease, GWTG–Heart Failure, and GWTG–Stroke registries, can help hospitals reduce disparities in care.²⁶⁶ Hospitals participating in GWTG–Coronary Artery Disease, GWTG–Heart Failure, and GWTG–Stroke have improved care for black, Hispanic, and white patients equitably to reduce or eliminate disparities in care.²⁸⁰

Integrate the AHA’s Principles for Palliative Care Within Delivery of Care

Palliative care is patient- and family-centered care that improves life by anticipating, preventing, and treating suffering. Palliative care, with its primary focus on both relief of symptoms and supportive care, has the potential to alleviate patients’ and family caregivers’ distress, improve their overall quality of life, and foster well-being even as seriously ill patients live with illness burden. This is an expanding body of research that demonstrates that patients living with serious illness, including those with CVD and stroke, identify several elements of palliative care among their top priority needs from the healthcare system such as improving pain and symptom management, avoiding inappropriate prolongation of dying, achieving a sense of control, and avoiding burdening others.²⁸¹ Introducing early palliative care in the treatment of patients with metastatic non-small-cell lung cancer extended mean survival, reduced depression, and led to better quality of life compared with patients who did not receive concurrent palliative care.²⁸² Patients with chronic pulmonary disease or heart failure receiving palliative care had significantly better outcomes on self-management of illness, awareness of illness-related resources, and legal preparation for end of life. These patients also reported lower symptom distress, greater vitality, better physical functioning, and higher self-rated health than randomized control subjects.²⁸³ Individuals with CVD and stroke should have access to a well-coordinated medical team to personalize care, to optimize quality of life, and to minimize suffering.

Ensure Implementation of Pulse Oximetry for Newborns

A recent policy goal is to increase the use of pulse oximetry to screen newborns before they are discharged from a birthing facility to identify infants with critical congenital heart defects. Without screening, critical congenital heart defects in some newborns might not be recognized until later in life. Pulse oximetry screening can substantially reduce the postnatal diagnostic gap in critical congenital heart defects; false-positive results leading to unnecessary examinations of healthy newborns are rare.²⁸⁴ In 1 study, introducing pulse oximetry screening before discharge improved the total detection rate of critical congenital heart disease to 92%.²⁸⁵ This appears to be cost-neutral in the short term and may be cost-effective in the long term as a result of both reduced need for preoperative neonatal intensive care and probable prevention of neurological morbidity.

Postevent Rehabilitation*Increase Access to, Use of, and Reimbursement for Cardiac Rehabilitation and Devise New Models of Care*

Cardiac rehabilitation (CR) is a multidisciplinary, comprehensive program designed to optimize a patient's physical, psychological, and social functioning, in addition to modifying cardiovascular risk.²⁸⁶ It is currently approved by Medicare for patients with myocardial infarction; patients with angina; patients after percutaneous coronary intervention, coronary artery bypass graft surgery, valve surgery, and cardiac transplantation; and more recently, select patients with congestive heart failure.^{13,287} In patients with myocardial infarction, there is a 26% reduction in all-cause mortality, a 36% reduction in cardiac mortality, and a reduction in reinfarction with exercise-based CR.²⁸⁸ Despite these impressive benefits, it is estimated that <30% of eligible patients are referred and participate in the program.²⁸⁹ Only some 14% of Medicare patients hospitalized for acute myocardial infarction and 31% of patients who undergo coronary artery bypass graft surgery actually use CR.²⁹⁰

There are several reasons for poor referral and use of CR. Systems-level factors contribute: A lack of automated and standardized methods of identifying appropriate patients and initiating referrals characterizes facilities with low CR use.²⁹¹ Patients commonly do not understand the benefits of the program, particularly if they are not educated during the early inpatient period by the healthcare team.²⁹² Lack of insurance coverage is a major barrier for participation; insured patients are almost 3 times as likely to be referred as the uninsured.²⁹³ Those in rural areas are less likely to participate, partly as a result of the limited availability of nearby facilities, given the travel distance often required on a repetitive basis for continued participation.

Lower CR referral and participation rates disproportionately affect women, ethnic minorities, older individuals, and those of lower socioeconomic status.^{293,294} Not only are women referred less commonly than men, but they are given weaker recommendations for participation,²⁹⁶ possibly as a result of the perception that women may benefit less despite evidence to the contrary. Referral rates for nonwhites are also lower than those for whites, even after accounting for socioeconomic and insurance status.^{297,298} Such disparities are particularly relevant for blacks because of a higher risk factor burden and higher long-term CVD mortality rates.²⁹⁹ Patients of low socioeconomic status may be less able to miss work or to have the means to travel to rehabilitation centers, in addition to being underinsured and sensitive to copayment costs.¹²⁸

Several programs and policies have the potential to markedly improve CR referral and participation rates and to affect disparities in attendance.¹²⁸ No single referral strategy but rather the combined approach of systematic procedures (ie, order sets and automated processes) plus personal liaison (ie, bedside provision of information by healthcare provider) provides the greatest impact.³⁰⁰ Hospital-based interventions that enable automatic electronic referrals such as the AHA's GWTG program significantly improved referral rates.^{301,302} Compared with standard referral methods, strategies that involve care coordination between patient, referring physician, and the CR team led to an increase in CR enrollment from \approx 30% to 70%.¹³⁰ In addition, programs designed to

coordinate transfer of care between hospital and CR resulted in 18% higher CR use rate.³⁰³ Of note, automated strategies can help minimize disparities by ensuring nearly universal referral of patients, regardless of demographic or socioeconomic status.³⁰⁴ The greater adoption of electronic health records and implementation of their meaningful use through the Health Information Technology for Economic and Clinical Health Act have the potential to significantly enhance automated referral processes for CR. Although CR referral is a performance measure and a quality metric in ACC/AHA registries such as the Acute Coronary Treatment and Intervention Outcomes Network (ACTION),³⁰⁵ it is not currently one of the Centers for Medicare & Medicaid Services acute myocardial infarction core quality measures. Given the focus on public reporting of core measures and the ability of such reporting to change practice,³⁰⁶ CR referral should be included in this list.

Healthcare reform, including aspects of the ACA, can enhance participation in CR, first by increasing the overall number of insured. In addition, the essential health benefits, which are requirements for all health insurance plans offered to individuals or through the small-group market, contain coverage for rehabilitation services, including CR. Efforts should be made to preserve this designation of CR and to eliminate or minimize copayments that can be a barrier to participation,³⁰⁷ as has been done for other preventive services under the ACA. In 1 study, uninsured individuals were 71% less likely to adhere to CR compared with insured individuals, and copayment was associated with a 41% lower likelihood of adherence.¹³⁵ The accountable care organization model supported by the ACA encourages shared savings through preventive care, including CR, and facilitates coordination of care with redundant providers ensuring appropriate referral.

Patients in rural settings, the elderly, and those with lower income may have barriers to center-based CR, including lack of nearby facilities and challenges with transportation and job constraints. Internet-based, home-based, and community programs may be alternative models for outpatient CR. Home-based models are at least as effective as center-based interventions in promoting physical and psychological well-being³⁰⁸ and in improving cardiovascular risk factors such as systolic BP, smoking cessation, cholesterol level, and depression.^{131,309,310} Providing CR for socially vulnerable patients with home visits by a cardiac nurse is associated with higher adherence.³¹¹ Such alternative approaches should not replace traditional center-based CR but can be used to engage the many patients who currently are unable to participate because of various barriers.

Increase Access to, Use of, and Reimbursement for Stroke Rehabilitation Services and Continue Development of Tele-Stroke Services and New Poststroke Therapies

The AHA/American Stroke Association has promoted stroke systems of care to improve outcomes by coordinating care across a comprehensive, diverse, longitudinal system from primordial prevention, primary prevention, emergency medical services, acute care, secondary prevention, rehabilitation, and return to the community.^{9,312} Organized inpatient stroke units with coordinated, multidisciplinary stroke-related evaluation and services are one of the most effective strategies to improve poststroke outcomes. Stroke patients who are treated

in an organized inpatient stroke unit are more likely to be alive, independent, and living at home 1 year after stroke.³¹³

Most stroke units include access to early evaluations by rehabilitation and prompt physical therapy assessments. Many of the organized stroke units outside the United States also include multidisciplinary rehabilitation services as part of the stroke unit stay. One of the National Quality Forum–endorsed voluntary consensus standards for hospital care for primary stroke centers includes the proportion of patients with ischemic or hemorrhagic stroke who were assessed for rehabilitation services.

Despite the increased number of certified primary and comprehensive stroke centers, there is inadequate use of both inpatient and outpatient rehabilitation among US stroke survivors. Each year in the United States, ≈795 000 people are affected by strokes, and that number is expected to surpass the 1 million mark by 2050. It has been estimated that >60% of stroke survivors do not receive adequate rehabilitation, with as few as 20% of stroke patients being discharged to inpatient rehabilitation stays.³¹⁴ The extent of stroke rehabilitation (SR) is often limited by restrictions or lack of sufficient coverage in health insurance plans. Moreover, rehabilitation use among stroke survivors varies across hospitals and geographic locations, although there is no conclusive evidence on racial-ethnic disparities.^{315,316} Among Veterans Affairs stroke patients, the odds of receiving rehabilitation were significantly higher for urban-residing patients, compared with rural-residing patients.³¹⁷ A study in the northwestern United States found a striking gap between rural and urban hospitals in stroke care capacity, including rehabilitation therapies.

Although tele-stroke services emphasize increasing access to acute stroke care, there is a developing interest in improving rehabilitation access also through telemedicine strategies. Most poststroke telemedicine studies have been small preliminary evaluations of rehabilitation in adults; further research is needed.³¹⁸ Enhancing access to inpatient and outpatient rehabilitation services needs to be prioritized. Studies are needed to assess the efficacy of innovative approaches to deliver SR, particularly in rural regions.³¹⁹

The primary goals of SR are to prevent complications, to reduce impairments and disabilities, and to maximize patients' ability to be independent in activities of daily living. Most stroke centers recommend initiating SR as soon as possible once the diagnosis of stroke is established and the patient is medically stable enough to have physical therapy. Effective rehabilitation interventions initiated early after stroke can enhance recovery and minimize functional disability.

Specific pharmacological and device treatments for SR and recovery have lagged behind acute treatment and prevention. Research in stroke recovery medications and interventions has been prioritized in the most recent National Institute of Neurological Disorders and Stroke stroke recommendations and priorities that called for targeting the first 3 months after stroke to assess the impacts of various interventions and to determine the time course of recovery.³²⁰ Rehabilitation strategies could include stimulation, pharmacological agents, devices, stem cells, and combination therapies to accelerate recovery in the acute period after stroke. The established Stroke Trials Network of the National Institute of Neurological Disorders and Stroke

has a specific stroke-recovery planning group to help develop further randomized trials to evaluate recovery interventions.

Despite the lack of proven drugs and devices to enhance stroke recovery, there is considerable evidence of the rehabilitation benefits of various poststroke therapies to improve motor skills such as walking, reach and grasp, speech and language, visual field loss, and hemi-inattention.³²¹ Multiple randomized trials support the use of physical therapy interventions particularly “intensive, high-repetitive, task-oriented and task-specific training.”³²² Moreover, tailored counseling alone or with tailored supervised exercise promotes long-term participation in physical activity and improved functional exercise capacity after stroke.³²³ There is growing interest in self-management interventions to enhance stroke recovery, but research is needed to assess the appropriate content and delivery of these interventions and to determine the acceptability and efficacy of self-management programs.³²⁴

SR should be started early, maintained for a longer period of time after stroke, and available for a wider spectrum of stroke patients. There is a clear need to increase referral to, use of, and adequate reimbursement for SR services, including access to appropriate levels of poststroke physical therapy, occupational therapy, and speech/language therapies. Increasing referral, use, and adequate reimbursement for SR will improve the outcomes of countless stroke survivors and be instrumental in achieving the AHA goal of reducing mortality from stroke by 20% by 2020.

Discussion

Alignment of Current Policies With the 2020 Strategic Impact Goals

The present review documents the extensive policy portfolio adopted by the AHA over many years that is closely aligned with strategies and tactics to achieve the 2020 Strategic Impact Goals. Tables 5 and 6 present the main findings of this review and indicate the nature of these policy interventions and evidence base for the policy when an authoritative evidence review, whether internal to the AHA or otherwise, was used. In Table 5, especially striking is the wealth of policies that address smoking, diet, and physical activity.

Although BMI has not been explicitly prioritized in the AHA policy process for separate consideration and therefore leaves a gap in the table, it would be expected that effective implementation of the policies on physical activity and diet would have direct consequences in improved BMI. Similarly, lack of explicit policies on increasing intakes of fish and fiber-rich whole grains leaves gaps in the area of the healthy diet score. However, policies addressing the diet overall, that is, advocating a DASH-like dietary pattern or the US Dietary Guidelines Advisory Committee's recommended pattern, include these areas. In terms of both BMI and these components of the healthy diet score, it remains to be decided whether adding explicit policies would strengthen the portfolio. It could be argued that lack of a specific policy risks lack of effective monitoring of trends and disparities in these metrics, favoring making the policy and its measurable outcomes explicit.

Tables 5 and 6 also indicate that some, although not all, policies specifically address children (<20 years of), adults (≥20 years of age), or both. This aspect is in some cases self-evident (as in tobacco policies affecting youth) and in others implicit (as in finalizing voluntary FDA standards for reduction of sodium across all food and beverage categories, affecting both children and adults as parts of the whole population). Given the general decline in CVH metrics from childhood into and through adulthood, the opportunity to preserve ideal CVH is greater in childhood. This is in contrast to the need to reverse already impaired CVH, more typically in adulthood. The distinction by age between target populations for different strategies is of fundamental importance. Effective policy implementation requires clear specification of target age levels, whether child or adult, and perhaps by narrower age categories among children as currently defined. Similarly, policies might be refined by targeting more distinct age-specific levels of the metrics or score, whether ideal, intermediate, or poor.

Table 6 presents AHA policies applicable to individuals with recognized CVD or stroke to reduce mortality from these causes. Further aims are to prevent recurrent events and to reduce cardiovascular morbidity. Policies addressing CR and SR not only will improve quality of life but also will reduce disability for survivors. The policies in Table 6 on systems of care, including acute response and acute care for cardiovascular and stroke events, and on postevent rehabilitation for those who survive represent secondary or tertiary prevention, whereas those on the CVH metrics in Table 5 concern primordial and primary prevention. Attention to the 7 metrics to reduce the risk of recurrent cardiovascular or stroke events and death is an integral part of secondary prevention. Here too the metrics that remain ideal should be preserved and protected, and those that are intermediate or poor require remedial intervention.

Although the AHA's policies are discussed in this statement in the context of the AHA 2020 Strategic Impact Goals and therefore in relation to the US population and healthcare system, the AHA has also been a key partner in the growing international advocacy efforts to reduce the burden of premature deaths from noncommunicable diseases. In 2011, the United Nations High-Level Meeting unanimously adopted a Political Declaration on the Prevention and Control of Noncommunicable Diseases.³²⁵ CVD and stroke are the first and second leading causes of global mortality from noncommunicable diseases. The World Health Organization adopted a global monitoring framework for noncommunicable diseases and set multiple targets, including reduction of premature mortality from noncommunicable diseases by 25% by 2025.³²⁶ The World Health Organization set target levels for several risk factors, including reductions in BP, smoking, alcohol, sodium consumption, and physical inactivity and a halt to the rise in obesity and diabetes mellitus. Most of the AHA's policies described in this statement are applicable to both the World Health Organization goals and the AHA international impact goal of reducing premature global mortality from CVD and stroke by 25% by 2025 and improving CVH in priority areas. Further support for this global policy framework is provided by the World Heart Federation, whose 25 by 25 program shares this CVD reduction goal.^{326a}

Future Policy Development

Policies will continue to evolve as experience is gained with continuing implementation of the current policy portfolio. Accumulating evidence will inform ongoing reviews of existing policies. The AHA policy research department will continually monitor these developments and initiate policy responses as appropriate. The AHA approach to evidence review described here will be further refined to guide this process.

Of particular note in this connection is AHA's recent scientific statement calling for attention to the social determinants of health, "Social Determinants of Risk and Outcomes for Cardiovascular Disease":

...[A]lthough we have traditionally considered CVD the consequence of certain modifiable and non-modifiable physiological, lifestyle, and genetic risk factors, we must now broaden the focus to incorporate a third arm of risk, the social determinants of health. Failure to demonstrate awareness of this third dynamic will result in a growing burden of CVD, especially among those with the least means to engage in the healthcare system.²²⁵

This statement thus anticipates a new dimension for policy development by the AHA, addressing elements of the Figure.

Thus, the scope of policy development would be widened to consider each of these determinants, that is, the social/community context, health/health care, neighborhood/built environment, education, and economic resources/stability, all in the context of global, national, state, and local policy and practices. That statement presents evidence linking social factors with CVD risk and outcomes and strongly suggests that this awareness will substantially influence future development of the AHA policy portfolio.

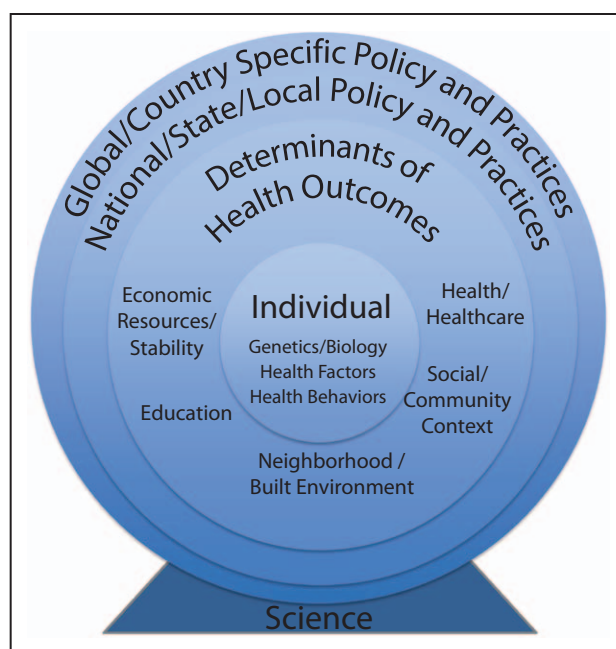


Figure. American Heart Association determinants of health outcomes.

Policy Research

Research needs in connection to policy to achieve AHA's 2020 and future strategic goals can be thought of in terms of 3 research functions: (1) for current policies, to evaluate their translation and implementation; (2) for development of new policies, to expand and strengthen the evidence base; and (3) for all policies, to evaluate their impact in terms of targeted improvements in population health. The first function calls for greatly expanded application of implementation science; the second, continued support of focused basic, clinical, and population research; and the third, significantly enhanced surveillance of population-level determinants of health, intervention effectiveness, and CVH- and CVD-related outcomes at the national, state, and local levels. Special emphasis is needed on economic analyses, including cost-effectiveness, value of investment, and quality life-years saved, with overarching consideration of social determinants of health and of vulnerable populations. Research in these 3 areas should include increased investment in modeling, with application of advanced analytic methods to expanding data sources as they become available. Each of these 3 research functions is discussed briefly, followed by an inventory of priority research needs specific to each metric for CVH and indicator of care and outcomes for reducing mortality from CVD and stroke.

1. Evaluating implementation of current policies.

Whether any particular policy is effective requires knowledge about its implementation: its reach, fidelity to the original intent, and influence by particular circumstances. Success or failure of an intervention may result from various influential factors across diverse population groups and settings, with lessons to be learned whatever the outcome. Such heterogeneity of outcomes is emphasized by Mozaffarian and others⁵ in their review of population approaches to diet, physical activity, and smoking. As they observed, knowledge of influential factors can help to identify population settings where a particular intervention is effective or where adaptations are needed to make it so. Documentation is required to know how a given policy has been translated into action, what specific barriers or facilitators have been encountered in its implementation, and by what measures its impact has been evaluated. Much can be gained in future policy development and prioritization by ensuring sufficient commitment to this essential area of research, implementation science.

2. Strengthening evidence for new policies.

The ongoing research enterprise of the AHA and others, including especially the recently established Strategically Focused Research Networks program, ensures that new evidence and updated evidence reviews related to strategic goals will continue to accrue. In addition to the specific topics listed in Tables 7 and 8, several generic issues in future research deserve consideration. For example, Mozaffarian and others⁵ point to the need for studies of multicomponent intervention strategies to disentangle their effects, financial and economic factors at the levels of both personal behaviors

and health system operations, and better understanding of the impact of community environments on health behaviors, including standardization of research methods. They also call for greater investment in longitudinal rather than cross-sectional studies to enable inferences about causal sequences and long-term sustainability of interventions and favorable outcomes. Furthermore, Havranek and others, in discussing a research agenda on social determinants of cardiovascular risks and outcomes, called especially for studies of interventions, programs, and policies in this area.²²⁵ Several topic areas were identified, both methodological and substantive: standardization of social group categories; interactions among social factors and their links to CVH; nontraditional measures of social determinants indicating socioeconomic differences or racism; intergenerational transmission of social disadvantage; and psychosocial, behavioral, biological, and epigenetic aspects of social determinants and health.

3. Monitoring determinants of CVH and CVD outcomes.

When CVH metrics and CVD indicators were selected for the 2020 Strategic Impact Goals, several candidates were excluded or ranked as secondary metrics because of a lack of data from nationally representative population samples.¹ Accordingly, Lloyd-Jones and others² strongly emphasized the need to strengthen data sources for monitoring and surveillance of CVH and CVD in the United States. The AHA's interest in monitoring the secondary metrics, and more adequately tracking the primary ones in diverse populations and at all ages, will be better served as the needed data sources are identified or enhanced. Examples of target areas for improving data sources include national data on incidence, disease severity, 30-day case fatality, and recurrence rates for coronary events, stroke, heart failure, and sudden cardiac arrest; GWTG or analogous metrics on quality of care for coronary artery disease, stroke, and heart failure; new metrics for psychosocial stress; indicators of the built environment; metrics for cardiovascular symptom control; and individual-level exposure data on air quality and particulate matter. Methodological research is needed in several of these areas to develop tools for new and ongoing research on population-level CVH and CVD in support of policy evaluation and development.

Tables 7 and 8 present a matrix of priority areas for future policy research. Specific topics are arrayed in relation to both the metrics and indicators addressed in Tables 5 and 6 and the 3 categories of policy research discussed above. The tables are not exhaustive but illustrate questions important for further policy development and the AHA's ongoing strategic planning process.

In general, research on areas shown for translation and implementation of current policies would provide critical information on the effectiveness of advocacy for AHA's policy portfolio. Topics listed under new policies identify examples for which new evidence could lead to refinement of existing policies or to altogether new policy priorities when gaps are found. Topics for study of population health impact include changes in prevalence of population-level exposures, health

Table 7. Topic-Specific Priority Areas for Future Policy Research: CVH

Health Behaviors and Factors	Current Policies: Translation and Implementation	New Policies: Expanding the Evidence Base	All Policies: Population Health Impact
Tobacco	<p>Address the cultural, social, and economic factors that promote, sustain, or discourage the use of e-cigarettes and other new tobacco products</p> <p>Determine the relative impacts of various taxation strategies on youth access to e-cigarettes, adult smokers' use of these products, and industry response</p> <p>Assess the extent of including e-cigarettes in smoke-free air laws to decrease the use of e-cigarettes by adult smokers and youth access to and initiation of e-cigarette use</p>	<p>Test the efficacy of new tobacco products as cessation devices</p> <p>Determine whether new tobacco products serve as a gateway to conventional smoking and reinitiation by former smokers</p> <p>Assess the extent and duration of dual use or use of multiple tobacco products</p> <p>Evaluate the impact of Tobacco 21 purchasing laws on smoking prevalence, youth initiation, and youth access</p>	<p>Identify short- and long-term adverse health effects of e-cigarettes and other new tobacco products</p> <p>Assess the impact of marketing and communications on the prevalence of use of e-cigarettes and other new tobacco products</p> <p>Increase surveillance of e-cigarette use and other tobacco products</p> <p>Monitor effects of intentional or unintended use of other substances and medications in e-cigarette delivery devices and its impact</p>
BMI	<p>Assess the extent of the use of BMI as a HEDIS measure on delivery of lifestyle/behavioral counseling in the clinical environment and community settings</p> <p>Assess the use of physical activity and dietary policies to affect BMI and other CVH metrics in specific age and demographic groups</p>	<p>Use the Behavioral Risk Factor Surveillance System and Youth Risk Behavioral Surveillance System to assess geographic variation in distributions and trends of BMI to aid in targeting state and local policy changes</p>	<p>Continue NHANES and other monitoring of population trends of BMI at all ages, beginning before school age, in large enough population samples for tracking of disparities and trends among multiple demographic groups, especially at early ages</p>
Physical activity	<p>Determine how school wellness policies and early care and education standards are being implemented for promoting physical activity</p> <p>Identify both barriers and promising strategies to increase the adoption of mixed-use zoning codes</p> <p>Identify the most successful combinations of street-scale improvements to facilitate physical activity in diverse populations</p> <p>Determine which policies are most effective in promoting physical activity in different settings</p>	<p>Conduct case studies and economic analyses to develop promising municipal policies for active transportation</p> <p>Determine which shared-use policies involving schools are most efficacious and cost-effective</p> <p>Evaluate the relative efficacy of multi-intervention strategies to promote physical activity in schools</p> <p>Study the relation of park proximity and design to neighborhood levels of physical activity</p> <p>Across all settings and policies, determine the impact of infrastructure and access on disparities in physical activity</p>	<p>Improve surveillance systems for levels of and disparities in physical activity and physical fitness across the US population to assess the impact of different policy approaches on population health for all major demographic groups</p>
Healthy diet	<p>Gauge the extent of implementation of policies to improve access to affordable healthy foods, especially in vulnerable populations</p> <p>Assess variations in the adoption of policies to promote the consumption of water and milk (and coffee/tea in adults) vs SSBs across different settings</p> <p>Evaluate the processes of food policy implementation by setting and geographic region</p>	<p>Determine how differences in incentives/disincentives within the Supplementation Nutrition Assistance Program influence consumer purchasing of healthy foods and beverages</p> <p>Determine how pricing, taxation, and agricultural subsidies affect food and beverage consumption, health behaviors, and health outcomes</p> <p>Develop RCTs targeting major food sources of sodium in specific demographic subgroups and devise interventions aimed at reducing intakes of these foods</p>	<p>On the basis of NHANES data, including "What We Eat in America," monitor disparities and changes by age, sex, and ethnicity in dietary sources of sodium and trends in blood pressure, BMI, blood lipids, and glucose</p> <p>Monitor food industry practices aimed to gradually reduce sodium content over time</p>
Total cholesterol	<p>Assess the extent of expanded access to health care and whether changes are occurring in cholesterol management</p>	<p>Evaluate promising policy approaches to improve medication adherence</p>	<p>Measure the population health impact of integrating clinical guidelines into systems of healthcare delivery</p> <p>Monitor disparities and changes in population distributions of blood lipids by sex and ethnicity at all ages</p>

(Continued)

Table 7. Continued

Health Behaviors and Factors	Current Policies: Translation and Implementation	New Policies: Expanding the Evidence Base	All Policies: Population Health Impact
BP	Assess the impact of reimbursement for home BP monitoring (equipment and clinical interpretation of results) on hypertension treatment, control, and medication adherence	Evaluate promising policy approaches to improve medication adherence	Determine the population health impact of integrating the AHA BP algorithm into systems of healthcare delivery Monitor disparities and changes in population distributions of BP by sex and ethnicity at all ages
Fasting plasma glucose	Assess whether policies to improve health behaviors are being evaluated for their effectiveness in maintaining favorable levels of blood glucose and preventing type 2 diabetes mellitus, especially in youth	Perform further studies in adults of the benefits and risks of alternative antihyperglycemic therapies, including bariatric surgery Expand studies of early life influences on the maintenance or loss of ideal fasting plasma glucose and interventions to promote and sustain ideal fasting plasma glucose across the population	Monitor disparities and changes in population distributions of blood glucose and prevalence of type 2 diabetes mellitus by sex and ethnicity at all ages

AHA indicates American Heart Association; BMI, body mass index; BP, blood pressure; CVH, cardiovascular health; e-cigarette, electronic cigarette; HEDIS, Healthcare Effectiveness Data and Information Set; NHANES, National Health and Nutrition Examination Survey; RCT, randomized, controlled trial; and SSB, sugar-sweetened beverage.

behaviors, and health factors, the improvement of which is called for by the AHA 2020 Strategic Impact Goals. More robust monitoring and evaluation generally require enrichment of population samples by age and ethnicity. This would enable more complete assessment of policy impact from the earliest years of life and across diverse populations by race/ethnicity, geography, economic circumstances, and other determinants.

Conclusions

The AHA 2020 Strategic Impact Goals set bold targets of achieving a 20% improvement in CVH of all Americans

while continuing to reduce CVD and stroke mortality by 20%, both by the year 2020. The introduction of the concept of CVH with its 7 metrics has occasioned this special review of the AHA policy portfolio as it aligns with elements of the Strategic Impact Goals.

We have found current AHA policy to offer a comprehensive array of policy guidance to action in both arenas: promoting and preserving CVH and reducing CVD and stroke mortality. In the majority of cases, for a specified metric or indicator, there are referable policies supported by evidence reviews conducted by the AHA, an AHA/ACC collaboration, or other sources.

Table 8. Topic-Specific Priority Areas for Future Policy Research: CVD and Stroke Mortality

Health Behaviors and Factors	Current Policies: Translation and Implementation	New Policies: Expanding the Evidence Base	All Policies: Population CVH Outcomes
Systems of care/acute care	Identify settings in which health information technology and mobile health technology are being deployed most successfully in the delivery of care and improving transitions of care Monitor the uptake of policy on pulse oximetry screening for newborns and determinants of effective implementation	Compare the effectiveness and cost-effectiveness of different advance care planning, palliative care, and hospice care systems	Determine how various care coordination models are affecting population health outcomes
Postevent rehabilitation	Determine what specific policy approaches to enhance participation and adherence to CR programs are being used Evaluate the extent of copayment elimination and systematic reporting of CR as a quality measure Assess the impact that Centers for Medicare and Medicaid approval for CR coverage is having for stable patients with class II or III heart failure and an ejection fraction <35% on the basis of the results of the HF-ACTION Study, ²⁸⁷ as well as whether there will be specific impediments to enrollment of such patients	Pilot alternative delivery methods and their reimbursement to complement center-based care or to replace these programs for those who are unable to participate Evaluate the effectiveness of innovative stroke rehabilitation programs using telemedicine and self-management programs	Assess the impact of better referral, use, and adherence to CR programs on population outcomes

CR indicates cardiac rehabilitation; CVD, cardiovascular disease; CVH, cardiovascular health; and HF-ACTION, Heart Failure and A Controlled Trial Investigating Outcomes of Exercise Training.

There are some instances in which further policy development could add valuable support to the AHA's efforts to achieve the 2020 goal: making policies explicit in situations in which, because of the existence of related policy, this has not been a priority (eg, BMI, fish, fiber); specifying policies that would guide different activities in the interest of children and adults; and incorporating established metrics for GWTG or similar measurable intermediate outcomes as indicators of acute or postevent care and health systems functioning.

This appreciation of the AHA policy portfolio invites further assessment of the research portfolio and the potential for strengthening the science base for the AHA's activities. How well are AHA's policy priorities being realized at national, state, and local levels and for vulnerable populations? How

well does ongoing science and evidence synthesis contribute to timely policy development? What is the impact of AHA policy, current or anticipated, on the measures of population CVH and CVD and stroke mortality that are critical to the 2020 Strategic Impact Goals? Addressing these basic policy questions and the specific priority topics suggested here will require ongoing assessment of the AHA research enterprise. To the extent that these are new questions, new approaches, new methods, and a new cadre of cardiovascular scientists may be needed.

We are encouraged by this review and look forward to an era in which AHA exerts ever-greater influence on the underlying science and consequent policies for improving the CVH and longevity of all Americans.

Disclosures

Writing Group Disclosures

Writing Group Member	Employment	Research Grant	Other Research Support	Speakers' Bureau/Honoraria	Expert Witness	Ownership Interest	Consultant/Advisory Board	Other
Darwin R. Labarthe	Northwestern University	AHA*	None	None	None	None	None	None
Larry B. Goldstein	University of Kentucky	None	None	None	None	None	None	None
Mark J. Alberts	UTSW-Dallas	None	None	Speaker for Genentech†	None	None	None	None
Elliott M. Antman	Brigham and Women's Hospital, Boston	None	None	None	None	None	None	None
Donna K. Arnett	University of Kentucky College of Public Health	None	None	None	None	None	None	None
Aruni Bhatnagar	University of Louisville	NIH†: 2R01 HL55477 1P20 GM103492 5P01 HL078825 1R01 ES19217 1P50 HL120163 1R01 HL120746	None	None	None	None	None	None
Mark A. Creager	Dartmouth-Hitchcock Medical Center	None	None	None	None	None	None	None
Stephen R. Daniels	University of Colorado School of Medicine, Children's Hospital Colorado	None	None	None	None	None	Sanofi*; Novo Nordisk*	None
Gregg C. Fonarow	David Geffen School of Medicine at UCLA	NIH/NHLBI†: examining the effects of high-protein diet on outcomes in heart failure patients; NIH/BWH†: novel therapies to improve renal and cardiac allograft outcomes; NIH/NINR†: central autonomic nervous system regulation in heart failure	None	None	None	None	Consults on Steering Committee for Amgen,* Novartis,† Johnson & Johnson,* Boston Scientific,* Baxter*	Employee at UCLA/ Director of the Ahmanson-UCLA Cardiomyopathy Center/holds the Eliot Corday Chair of Cardiovascular Medicine and Science†

(Continued)

Writing Group Disclosures (Continued)

Writing Group Member	Employment	Research Grant	Other Research Support	Speakers' Bureau/ Honoraria	Expert Witness	Ownership Interest	Consultant/ Advisory Board	Other
Laura L. Hayman	University of Massachusetts, Boston	NIH/NIHMD* Center for Health Equity Intervention Research; NIH/NIDDK,* Translation of Social Media Obesity Treatment into Two College Campus Communities; NIH/NCATS*, UMass Center for Clinical & Translational Research	None	None	None	None	None	None
Amit Khera	UT Southwestern Medical Center	None	None	None	None	None	None	None
Penny Kris-Etherton	Penn State University	None	None	None	None	None	None	None
Leighton Ku	George Washington University	None	None	None	None	None	None	None
Paula M. Lantz	University of Michigan	None	None	None	None	None	None	None
Suhui Li	George Washington University	None	None	None	None	None	None	None
Jennifer G. Robinson	University of Iowa	Research grants to institution: Amarin†; Amgen†; AstraZeneca†; Eli Lilly†; Esai†; GlaxoSmithKline†; Merck†; Pfizer†; Regeneron/ Sanofi†; Takeda†	None	None	None	None	Merck*; Akcea/ Isis†; Amgen†; Eli Lilly*; Esperion*; Merck*; Pfizer†; Regeneron/ Sanofi†	None
Ralph L. Sacco	University of Miami	AHA†; NINDS (Northern Manhattan Study)†	None	None	None	None	None	None
James F. Sallis	University of California, San Diego	None	None	None	None	None	SPARK Programs of School Specialty Inc†	None
Linda Van Horn	Northwestern University	None	None	None	None	None	None	None
Laurie P. Whitsel	American Heart Association	None	None	None	None	None	None	None

This table represents the relationships of writing group members that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all members of the writing group are required to complete and submit. A relationship is considered to be "significant" if (a) the person receives \$10 000 or more during any 12-month period, or 5% or more of the person's gross income; or (b) the person owns 5% or more of the voting stock or share of the entity, or owns \$10 000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

*Modest.
†Significant.

Reviewer Disclosures

Reviewer	Employment	Research Grant	Other Research Support	Speakers' Bureau/ Honoraria	Expert Witness	Ownership Interest	Consultant/ Advisory Board	Other
Steven Gortmaker	Harvard School of Public Health	None	None	None	None	None	None	None
Michael Schooley	Centers for Disease Control	None	None	None	None	None	None	None

This table represents the relationships of reviewers that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all reviewers are required to complete and submit. A relationship is considered to be "significant" if (a) the person receives \$10 000 or more during any 12-month period, or 5% or more of the person's gross income; or (b) the person owns 5% or more of the voting stock or share of the entity, or owns \$10 000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

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