Part B. Chapter 2: 2015 DGAC Themes and Recommendations: Integrating the Evidence

The 2015 DGAC set out to examine a broad set of research questions in its effort to develop sound recommendations to guide public policies aimed at promoting individual and population health. As these efforts moved forward, it became clear that a number of important, overarching themes were emerging and that these areas provided a solid base of evidence for the Committee’s recommendations. In this chapter, we summarize these themes and put forth our overall recommendations to the Secretaries of Health and Human Services and Agriculture.

DGAC 2015 OVERARCHING THEMES

- **The Problem.** About half of all American adults—117 million individuals—have one or more preventable, chronic diseases that are related to poor quality dietary patterns and physical inactivity, including cardiovascular disease, hypertension, type 2 diabetes and diet-related cancers. More than two-thirds of adults and nearly one-third of children and youth are overweight or obese, further exacerbating poor health profiles and increasing risks for chronic diseases and their co-morbidities. High chronic disease rates and elevated population disease risk profiles have persisted for more than two decades and disproportionately affect low-income and underserved communities. These diseases focus the attention of the U.S. health care system on disease treatment rather than prevention; increase already strained health care costs; and reduce overall population health, quality of life, and national productivity. Other less common, but important, diet- and lifestyle-related health problems, including poor bone health and certain neuropsychological disorders and congenital anomalies, pose further serious concerns.

- **The Gap.** The dietary patterns of the American public are suboptimal and are causally related to poor individual and population health and higher chronic disease rates. Few, if any, improvements in consumers’ food choices have been seen in recent decades. On average, the U.S. diet is low in vegetables, fruit, and whole grains, and high in sodium, calories, saturated fat, refined grains, and added sugars. Underconsumption of the essential nutrients vitamin D, calcium, potassium, and fiber are public health concerns for the majority of the U.S. population, and iron intake is of concern among adolescents and premenopausal females. Health disparities exist in population access to affordable healthy foods. Eating behaviors of individuals are shaped by complex but modifiable factors, including individual, personal, household, social/cultural, community/environmental, systems/sectorial and policy-level factors (see the 2015 DGAC conceptual model in Part B. Chapter 1: Introduction). However, a dynamic and rapidly evolving food environment epitomized by the abundance of highly processed, convenient, lower-cost, energy-dense, nutrient-poor foods makes it
Part B. Chapter 2: Themes and Recommendations: Integrating the Evidence

particularly challenging to implement health promoting diet-related behavior changes at
individual and population levels.

- **The Dietary Patterns.** Current research provides evidence of moderate to strong links
  between healthy dietary patterns, lower risks of obesity and chronic diseases, particularly
  cardiovascular disease, hypertension, type 2 diabetes and certain cancers. Emerging evidence
  also suggests that relationships may exist between dietary patterns and some neurocognitive
  disorders and congenital anomalies. *The overall body of evidence examined by the 2015
  DGAC identifies that a healthy dietary pattern is higher in vegetables, fruits, whole grains,
  low- or non-fat dairy, seafood, legumes, and nuts; moderate in alcohol (among adults);
  lower in red and processed meats;¹ and low in sugar-sweetened foods and drinks and
  refined grains.* Additional strong evidence shows that it is not necessary to eliminate food
  groups or conform to a single dietary pattern to achieve healthy dietary patterns. Rather,
  individuals can combine foods in a variety of flexible ways to achieve healthy dietary
  patterns, and these strategies should be tailored to meet the individual’s health needs, dietary
  preferences and cultural traditions. Current research also strongly demonstrates that regular
  physical activity promotes health and reduces chronic disease risk.

- **The Individual.** Sound tools and resources, like the *Dietary Guidelines for Americans* and
  the *Physical Activity Guidelines for Americans*, can help individuals achieve healthy diet and
  physical activity patterns. Moderate to strong evidence also demonstrates that dietary
  interventions implemented by nutrition professionals and individual or small-group
  comprehensive lifestyle interventions that target diet and physical activity and are led by
  multidisciplinary professional teams provide optimal results in chronic disease risk reduction,
  weight loss, and weight loss maintenance. Additional evidence indicates that individuals can
  be helped in their intentions to implement healthy lifestyles by targeting specific eating and
  physical activity behaviors (e.g., meal patterns, cooking and preparation techniques,
  family/household meal experiences, reducing sedentary behaviors in adults and youth,
  reducing screen time in children). Sound behavioral interventions involve engaging
  individuals actively in the behavior change process, using traditional face-to-face or small
  group strategies and new technological approaches (websites and mobile/telephone
  technology), by providing intensive, long-term professional interventions as appropriate, and
  by monitoring and offering feedback on sustainable behavioral change and maintenance
  strategies over time.

- **The Population.** Moderate to strong evidence shows that targeted environmental and policy
  changes and standards are effective in changing diet and physical activity behaviors and
  achieving positive health impact in children, adolescents, and adults. Research from early
  child care settings, schools, and worksites demonstrate that policy changes, particularly when

¹ As lean meats were not consistently defined or handled similarly between studies, they were not identified as a
common characteristic across the reviews. However, as demonstrated in the food pattern modeling of the Healthy
U.S.-style and Healthy Mediterranean-style patterns, lean meats can be a part of a healthy dietary pattern.
combined with multi-faceted programs (e.g., nutrition educational initiatives, parent engagement, food labeling, nutrition standards, nutrition and behavioral intervention services) can increase healthy food choices and overall dietary quality, and improve weight outcomes. Population approaches that engage parents and families, as appropriate, involve collaborations across systems and sectors (e.g., schools, food retail, health care institutions and providers, and health insurers), and mobilize public-private partnerships to provide effective models for producing synergistic effects on diet, physical activity, and health-related outcomes.

- The Long-term View. The 2015 DGAC also examined the near- and long-term sustainability of healthy dietary patterns as well as the safety of certain key dietary constituents (i.e., caffeine and aspartame). Quantitative modeling research showed how healthy dietary patterns relate to positive environmental outcomes that improve population food security. Moderate to strong evidence demonstrates that healthy dietary patterns that are higher in plant-based foods, such as vegetables, fruits, whole grains, legumes, nuts, and seeds, and lower in calories and animal-based foods are associated with more favorable environmental outcomes (lower greenhouse gas emissions and more favorable land, water, and energy use) than are current U.S. dietary patterns. Furthermore, sustainable dietary patterns can be achieved through a variety of approaches consistent with the Dietary Guidelines for Americans and, therefore, offer individuals many options and new opportunities to align with personal and population health and environmental values systems. Healthy, sustainable dietary patterns also may provide new themes for consumer education and communication on lifestyle practices that can promote food security now and for future generations and create a “culture of health” at individual and population levels.

In summary, the research base reviewed by the 2015 DGAC provides clear and consistent evidence that persistent, prevalent, preventable health problems, notably overweight and obesity, cardiovascular diseases, diabetes, and certain cancers, have severely and adversely affected the health of the U.S. population across all stages of the lifespan for decades and raise the urgency for immediate attention and bold action. Evidence points to specific areas of food and nutrient concern in the current U.S. diet. Moderate to strong evidence pinpoints the characteristics of healthy dietary and physical activity patterns established to reduce chronic disease risk, prevent and better manage overweight and obesity, and promote health and well-being across the lifespan.

Although behavior change is complex, moderate to strong evidence now points to effective strategies to promote healthy lifestyle behavior changes at individual and population levels. This overall research evidence base can be used to inform policy changes, multi-sectorial collaborations, as well as product/service reformulation as needed. It can be used with confidence to provide guidelines and standards for nutrition and lifestyle intervention services/programs in traditional health care and public health settings. It also provides frameworks for public and private sector initiatives and community programming to make
innovative environmental changes that can change population diet and physical activity
behaviors to promote population health.

Overall, the evidence base on the links between diet, physical activity, and health has never been
as strong or more compelling. The strength of evidence on “what works” to improve individual
and population lifestyle behaviors for health also has never been more robust, with solutions and
models of “best practices.” Furthermore, the increasing convergence of research evidence
showing that healthy dietary patterns not only reduce disease risks and improve health outcomes
but are associated with food security and sustainability provide a further, convincing rationale for
focused attention on prevention and individual and population health promotion. Additional
research must be conducted to strengthen this evidence base, and recommendations for such
research are made in each of the chapters in Part D. Science Base (see Appendix E-1: Needs for
Future Research for a compilation of the DGAC’s research recommendations).

DGAC 2015 RECOMMENDATIONS FOR ACTION

It will take concerted, bold action on the part of individuals, families, communities, industry, and
government to achieve and maintain healthy dietary patterns and the levels of physical activity
needed to promote a healthy U.S. population.

This will entail dramatic paradigm shifts in which population health is a national priority and
individuals, communities, and the public and private sectors seek together to achieve a
population-wide “culture of health” through which healthy lifestyle choices are easy, accessible,
affordable and normative—both at home and away from home. In such a culture, preventing
diet- and physical activity-related diseases and health problems would be much more highly
valued, the resources and services needed to achieve and maintain health would become a
realized human right across all population strata, the needs and preferences of the individual
would be seriously considered, and individuals and their families/households would be actively
engaged in promoting their personal health and managing their preventive health services and
activities. Health care and public health professionals would embrace a new leadership role in
prevention, convey the importance of lifestyle behavior change to their patients/clients, set model
standards for prevention-oriented activities and client/employee services in their own facilities,
and manage patient/client referrals to evidence-based nutrition and comprehensive lifestyle
services and programs. Communities and relevant sectors of our economy, including food,
agriculture, private business, health care (as well as insurance), public health and education,
would seek common ground and collaborations in promoting population health. Initiatives would
be incentivized to engage communities and health care systems to create integrated and
comprehensive approaches to preventing chronic diseases and for weight management.

Environmental changes, including policy changes, improved food and beverage standards,
reformulation of products and services as needed, and programs that enhance population lifestyle behavior changes and support preventive services also would be incentivized.

Although these propositions are extremely challenging, it is imperative to seek novel and creative, evidence-based solutions. The costs of failing to do so are the continuation of the very high rates of preventable diet- and physical activity-related health problems we confront as a Nation and the worsening of their serious adverse effects on our quality of life, population productivity, and already highly strained healthcare costs. The evidence base has never been stronger to guide solutions. What is needed are strong commitments and leadership, the development of targeted public and private policies and partnerships, and the implementation of evidence-based, cross-sectorial initiatives to achieve them. In the remainder of this chapter, the DGAC summarizes specific recommendations guided by our conceptual model, which is grounded in the socio-ecological theory model of individual and population lifestyle behavior change for health promotion and disease prevention (see Part B. Chapter 1: Introduction).

### Actions for Individuals and Families/Households

- Think prevention, know your lifestyle-related health risk profile, make personal goals and commitments, and take action to promote personal and household/family health. Work with health professionals to assess and monitor your health risks and to personalize your preventive lifestyle behavior plan of action.

- Know and understand how to modify your diet and physical activity to reduce personal and family member health risks. Know your current dietary pattern, including your healthy choices that can be maintained as well as areas for potential change. Act on this information. Seek to make gradual and sustainable changes in your dietary behaviors to achieve one of several sound healthy dietary pattern options (e.g., Healthy U.S.-style Pattern, the Healthy Mediterranean-style Pattern, or the Healthy Vegetarian Pattern; see Part D. Chapter 1: Food and Nutrient Intakes, and Health: Current Status and Trends). For most people, this will mean:
  - Improving food and menu choices, modifying recipes (including mixed dishes and sandwiches), and watching portion sizes.
  - Including more vegetables (without added salt or fat), fruits (without added sugars), whole grains, seafood, nuts, legumes, low/non-fat dairy or dairy alternatives (without added sugars).
  - Reducing consumption of red and processed meat, refined grains, added sugars, sodium, and saturated fat; substituting saturated fats with polyunsaturated alternatives; and replacing solid animal fats with non-tropical vegetable oils and nuts.
The 2015 DGAC advocates achieving healthy dietary patterns through healthy food and beverage choices rather than with nutrient or dietary supplements except as needed.

Use available Dietary Guidelines for Americans tools and other sound resources to initiate positive personal lifestyle changes to improve dietary and physical activity behaviors, including goal setting and self-monitoring.

- As needed, seek regular advice from qualified health care providers to establish a personalized plan for prevention that includes steps to adopt healthy dietary patterns and physical activity. As appropriate, engage with nutrition and health professionals to address personal health risks that can be lowered with sound diet and physical activity, or participate in comprehensive lifestyle interventions conducted by trained interventionists (registered dietitians/nutritionists, exercise and behavioral specialists).

- Achieve and maintain a healthy weight. Know your level of obesity risk. Know your energy needs and how they change with varying levels of physical activity. Take personal action for obesity prevention or weight loss management, as needed, using sound, evidence-based tools and resources. Seek to achieve a dietary pattern consistent with the Dietary Guidelines for Americans, recognizing that many evidence-based options can facilitate weight loss and weight loss maintenance. As appropriate, work with qualified nutrition professionals and health providers to create a personalized plan of action for obesity prevention. When needed, engage in intensive, long-term nutrition counseling or comprehensive lifestyle intervention strategies to achieve maximal, long-term weight loss and weight maintenance results.

- Ensure at home and in public settings, such as schools and early child care programs, that young children achieve a high-quality dietary pattern and level of physical activity. Encourage their active participation in food experiences and activity choices so that the importance of dietary quality and physical activity are reinforced, and healthy lifestyle behaviors become normative, habitual, and easier to maintain through adolescence and lifelong.

- Follow on a regular basis, the Physical Activity Guidelines for Americans. Engage in at least 2.5 hours a week of moderate-intensity aerobic physical activity, such as brisk walking, or 1.25 hours a week of vigorous-intensity aerobic physical activity. For weight control, at least 1 hour a day of moderate- to vigorous-intensity physical activity may be required. Engage children in at least 1 hour a day of moderate- to vigorous-intensity physical activity each day. Limit children’s screen time to no more than two hours per day. Adults should limit sedentary activity and replace it with aerobic and strengthening exercises. As needed, engage with qualified professionals in comprehensive lifestyle interventions to achieve maximal impact on healthy dietary and physical activity patterns and health outcomes. Get enough sleep!
Seek and demand the creation and maintenance of food and physical activity environments and resources in your community and in local public, private and retail settings so as to promote a “culture of health.” These are strongly needed to facilitate the ease of initiating and meeting the U.S. Dietary Guidelines recommendations at home and away from home.

**Actions for Communities and Populations**

- Aim to make healthy lifestyles and prevention a national and local priority and reality.
  - Create public and private policy changes at the national level that direct and incentivize collaborations by multiple sectors of influence, including health care, public health, education, food and agriculture, transportation, food retail, the media, non-governmental organizations, and service sectors.
  - Incentivize the development of policies and initiatives at local, state, and Federal levels that are carried out using cross-sectorial collaborations to promote individual healthy lifestyle behavior changes and create community “cultures of health.” These may include improvements in built and physical environments to create safe and accessible resources and settings for increased physical activity and more widely available healthy food choices. They may entail changes in policies, standards, and practices in retail, and public and private settings and programs that promote “cultures of health” and facilitate the initiation and maintenance of healthy lifestyle behaviors at individual and community levels.

- Seek a paradigm shift in health care and public health toward a greater focus on prevention and integration with food systems.
  - Incentivize and support nutrition professionals, health care providers, and other qualified professionals in their unique roles of encouraging and counseling patients and clients to adopt healthy dietary and physical activity and in offering evidence-based nutrition services and comprehensive lifestyle interventions. Integrate preventive lifestyle screening, referral, and interventions and services for weight management and chronic disease risk reduction into routine practice guidelines and quality assurance standards.
  - Support health care facilities, such as hospitals and clinics, in seeking to model prevention and achieving “cultures of health” by offering healthy food choices for patients, visitors, and staff; implementing preventive nutrition services and comprehensive lifestyle intervention programs; and making referrals to Federal and local food assistance programs as needed by their staff and clients.
  - Require health insurance providers to use financial and other positive incentives to encourage and motivate health care settings and businesses to support individuals in
Part B. Chapter 2: Themes and Recommendations: Integrating the Evidence

adopter healthy behaviors and engaging, as appropriate, in nutrition and exercise

counseling and comprehensive lifestyle behavior interventions.

- Encourage and incentivize health care innovations and community prevention through

  Affordable Care Act (ACA) policies and programs, including expanding preventive

  lifestyle services in traditional health services environments and new retail health

  services environments that link to Federal and local food assistance programs. These

  should provide resources for individuals to engage and sustain personal lifestyle behavior

  change. In addition, ACA programs and policies should increase access to qualified

  professionals and programs and services that promote healthy diet and physical activity

  behaviors.

- Incentivize businesses to establish employee health benefits plans that include access to

  resources and services that encourage personal health promotion and healthy lifestyle

  behavior changes. Support employers in using positive motivation strategies to realize

  these changes.

• Establish healthy food environments.

- Establish local, state, and Federal policies to make healthy foods accessible and

  affordable and to limit access to high-calorie, nutrient-poor foods and sugar-sweetened

  beverages in public buildings and facilities. Set nutrition standards for foods and

  beverages offered in public places. Improve retail food environments and make healthy

  foods accessible and affordable in underserved neighborhoods and communities.

- Develop and expand programs that encourage healthy eating and physical activity habits

  in young children and adolescents within school and early care and other education

  settings. Establish and implement policies and programs that provide nutritious foods,

  limit sugar-sweetened beverages and other unhealthy foods, incorporate nutrition

  curricula and experiences and physical activity opportunities, and increase provider and

  teacher skills to develop and promote these programs.

- Implement the comprehensive school meal guidelines (National School Lunch Program)

  from the USDA that increase intakes of vegetables (without added salt), fruits (without

  added sugars), and whole grains; limit sodium, added sugars, saturated fat, and trans fat;

  limit marketing unhealthy foods to children; make drinking water freely available to

  students throughout the day; ensure competitive foods meet the national nutrition

  standards (e.g., Dietary Guidelines for Americans); and eliminate sugar-sweetened

  beverages.

- Improve, standardize and implement Nutrition Facts labels and Front of Package labels to

  help consumers, including those with low literacy levels, make healthy food choices. The

  Nutrition Facts label should include added sugars (in grams and teaspoons) and include a
percent daily value, to assist consumers in identifying the amount of added sugars in foods and beverages and making informed dietary decisions. Standardize and create easy-to-understand front-of-package (FOP) label on all food and beverage products to give clear guidance about a food’s healthfulness. An example is the FOP label recommended by the Institute of Medicine, which included calories, and 0 to 3 “nutritional” points for added sugars, saturated fat, and sodium. This would be integrated with the Nutrition Facts label, allowing consumers to quickly and easily identify nutrients of concern for overconsumption, in order to make healthy choices.

- Align nutritional and agricultural policies with Dietary Guidelines recommendations and make broad policy changes to transform the food system so as to promote population health, including the use of economic and taxing policies to encourage the production and consumption of healthy foods and to reduce unhealthy foods. For example, earmark tax revenues from sugar-sweetened beverages, snack foods and desserts high in calories, added sugars, or sodium, and other less healthy foods for nutrition education initiatives and obesity prevention programs.

- Align food assistance programs such as SNAP and WIC with the Dietary Guidelines for Americans. Provide standards for purchasing that create new demands for healthy foods, such as vegetables and fruits, and discourage the purchase and consumption of foods, such as sugar-sweetened beverages. Support research to explore ways to improve overall diet quality in Federal and local food assistance programs.

- Support changes to the food environment that can help individuals make healthy choices in the foods they consume away from home and those they purchase away from home to consume at home. For example, the Committee encourages the food industry to continue to reformulate and make changes to improve the nutrition profile of certain foods. Examples of such actions include lowering sodium and added sugars content, achieving better saturated fat to polyunsaturated fat ratio, and reducing portion sizes in retail settings (restaurants, food outlets, and public venues, such as professional sports stadiums and arenas). The Committee also encourages the food industry to market these improved products to consumers.

- Implement policies and programs at local, state and national levels in both the public and private sectors to reduce added sugars and sodium in foods, limit availability of sugar-sweetened beverages, and promote healthy snacks. Approaches might include:
  - Making water a preferred beverage choice. Encourage water as a preferred beverage when thirsty. Make water accessible in public settings, child care facilities, schools, worksites and other community places where beverages are offered.
  - Reducing added sugars in foods and sugar-sweetened beverages in school meals.
Part B. Chapter 2: Themes and Recommendations: Integrating the Evidence

- Making “smart snacks” consistent with the Dietary Guidelines in schools, child care settings, parks, recreation centers, sports leagues, after-school programs, worksites, colleges and universities, healthcare, and other community settings.

- Implementing policies that limit exposure and marketing of foods and beverages high in added sugars and sodium to all age groups, particularly children and adolescents.

- Implementing economic and pricing approaches to promote the purchase of healthy foods and beverages. For example, taxation on higher sugar-and sodium-containing foods may encourage consumers to reduce consumption and revenues generated could support health promotion efforts. Alternatively, price incentives on vegetables and fruits could be used to promote consumption and public health benefits.

- Mounting public education campaigns to increase the public’s awareness of the health effects of excess added sugars, sodium, saturated fat, and calories.

- Support and expand access to healthy built environments and advocate wide community use.
  - Increase opportunities for regular public engagement in physical activity through improved urban and community designs, enhanced community built environments, business spaces, and transportation networks. Urban and community designs should encourage and promote active transportation, such as walking and biking. Green corridors can increase public safety and enhance active transportation.
  - Incentivize communities to make physical activity accessible, affordable, and safe. Encourage public and private sectors to work together to increase access to gyms, bike trails, pedestrian walkways, ball fields, and other recreation areas in the communities. Promote physical activity through social media, smart phone, and other technologies.
  - Reach out to and engage groups such as new immigrant communities who may abandon their native healthy lifestyle habits and others at highest nutritional and health risk, to ensure that they learn about resources and are motivated to access, engage in, and sustain healthy dietary patterns and physical activities within their cultural preferences.

- Maintain strong support for Federal food and nutrition programs.
  - Recognize their importance in creating demand for healthy food products as well as in shaping and modeling consumer behaviors relating to healthy dietary and physical activity patterns.
  - Align program standards with the Dietary Guidelines for Americans so as to achieve the 2015 DGAC recommendations and promote a “culture of health.”

- Recognize and place priority on moving toward a more sustainable diet consistent with the healthy dietary pattern options described in this DGAC report. Access to sufficient, nutritious, and safe food is an essential element of food security for the U.S. population. A
sustainable diet helps ensure this access for both the current population and future
generations.

- Enhance what is already being done by the private and public sectors to improve
environmental policies and practices around production, processing, and distribution
within individual food categories.

- Align local, state, and national practices and policies across sectors to promote a
sustainable and safe food supply to ensure long-term food security. Support robust
private and public sector partnerships, practices, and policies across the supply chain and
extending from farms to distribution and consumption that can incentivize actions to
develop a food system that embraces a core set of values that embody healthy, safe, and
sustainable dietary patterns. Monitor, evaluate, and reward sectors that do this. Establish
new, well-coordinated policies that include, but are not limited to, agriculture, economics,
transportation, energy, water use, and dietary guidance. Encourage all participants in the
food system, as they are central to creating and supporting sustainable and safe diets.

- Shift toward a greater emphasis on healthy dietary patterns and an improved
environmental profile across food categories to maximize environmental sustainability,
including encouraging consumption of a variety of wild caught or farmed seafood.

- Improve the nutrient profiles of certain farmed seafood species, particularly EPA and
DHA levels, through improved feeding and processing systems and preserve the
favorable nutrient profiles of other seafood. Establish strong policy, research, and
stewardship to improve the environmental sustainability of farmed seafood systems.

- Offer consumer-friendly information that facilitates understanding the environmental
impact of different foods in food and menu labeling initiatives.

- Recognize the importance of foodborne illness prevention and encourage consumer
behavior consistent with the four food safety principles described in the Dietary
Guidelines for Americans—Clean, Separate, Cook, and Chill, which are the foundation of
the Fight BAC!® campaign (www.fightbac.org).

REFERENCES


2. Eckel RH, Jakicic JM, Ard JD, de Jesus JM, Houston Miller N, Hubbard VS, et al. 2013
AHA/ACC guideline on lifestyle management to reduce cardiovascular risk: a report of the
American College of Cardiology/American Heart Association Task Force on Practice