12 Beyond "Good Nutrition"

The ethical implications of public health nutrition policy

Adele Hite
North Carolina State University
Raleigh, North Carolina, U.S.A.

As a registered dietitian, I was taught that individuals can exert considerable control over their future health outcomes, particularly those related to chronic disease, by simply following suggested dietary patterns. However, in my clinical experience, this did not always seem to be the case. Patients would report following standard nutrition recommendations for a reduced fat, plant-based, calorie-limited diet, yet were still struggling with chronic conditions this dietary pattern was supposed to prevent. It is possible that patients were lying about what and how much they were eating; this is a fairly common assumption in public health nutrition and in dietetics and one to which I will return. However, this perspective overlooks the history of controversy and the ongoing debate over the scientific basis for these recommendations. It also overlooks a paradoxical relationship between the standard nutrition recommendations that the patients I saw were trying to follow and diseases thought to be related to diet. Since the reduced-fat, plant-based, calorie-restricted diet paradigm to prevent chronic disease became institutionalized through federal dietary guidance in 1980—making it the accepted standard for what is considered a healthy diet—the rates of many chronic diseases have increased. Many experts have explained the failure of federal dietary guidance to prevent chronic disease by pointing out that, although there is some evidence that eating patterns of Americans have shifted toward recommended eating patterns, Americans have not been fully compliant with this guidance (Dietary Guidelines Advisory Committee [DGAC] 2010; Broad and Hite 2014). This narrative places the responsibility for the effectiveness of this public health intervention squarely on the shoulders of the population it is intended to assist, even as nutrition scientists continue to dispute the evidentiary basis for the intervention itself (Bahl 2015). Together, these issues raise questions about the ethics of current public health nutrition guidance, namely, "Who is responsible for the outcomes of a public health intervention?" and "What quality of evidence is needed to ethically implement a public health intervention, particularly in a nonemergency situation?"

Since evidence, effectiveness, and ethics are interconnected, a lack of effectiveness, coupled with concerns about standards of evidence, points to aspects of current public health nutrition guidance which are ethically problematic. Carter et al. (2011) have asserted, "evidence and ethics are implicitly related: evidence-based

practice may be more ethical, and ethically sensitive practice more effective" (p. 465). This chapter will explore why the development of effective policy must begin with ethical considerations regarding what is considered sufficient evidence for a public health intervention directed at changing individual lifestyle behaviors. I begin by exploring a framework of standards for establishing an ethical foundation for public health prevention policies oriented at lifestyle choices. Next, an examination of the origins of U.S. federal public health nutrition guidance for prevention of chronic disease provides a background for recognizing ethical issues in current nutrition guidance. These ethical issues are summarized in two problematic assumptions foundational to current public health nutrition policy: that the scientific justification for federal dietary health recommendations is firmly established and that there are no potential drawbacks to implementing these recommendations as policy. The chapter ends with a rationale for developing ethically responsible public health nutrition policy.

Ethical rationale and standards of evidence for public health prevention policies

The primary ethical foundation of public health policy is the imperative to protect the health of the community as a whole, although this obligation often conflicts with the desires or rights of an individual (Bayer et al. 2007). A strong evidentiary base is needed to justify interventions that may impinge upon individual values or preferences. However, not all preventive measures are equally urgent. When the public's health is in imminent danger—due to outbreak of a contagious disease, food poisoning or contamination, or breakdown of sanitation infrastructure after a natural disaster—imposition on individual freedom may be ethically justified, even when evidence needed to address the situation is not fully established. However, these sorts of public health measures—quarantines and closed beaches—are infrequent. Nonemergency preventive health measures are far more common: seat belt laws, tobacco-free zones, vaccination programs, cancer screenings, and dietary recommendations. What criteria determine when it is permissible for public health officials to impact individual lives in nonemergency situations? Specifically, for an issue as central to life as food, under what conditions is it ethically justified to provide guidance for asymptomatic individuals to make dietary changes to prevent chronic disease (Malm 2002)?

Citing the relative dearth of work on bioethics of preventive medicine, philosopher and bioethicist Heidi Malm (2002) has taken up the particular ethical issues of common preventive practices, including "encouraging specific dietary changes as a means to avoid particular diseases" (p. 3). She has suggested that a possible explanation for this lack of attention is the mistaken assumption that preventive medicine practices are either not ethically problematic or not significantly different from traditional biomedical practices. Malm argues that preventive public health recommendations both warrant their own ethical examination and entail ethical issues requiring different evidentiary standards than those used in biomedicine. According to Malm, conditions under which it is ethical to provide preventive

public health recommendations are when standards of evidence "beyond a reasonable doubt" demonstrate that unmistakably recommendations will provide an expected benefit to the individual, with minimal risk of harm (p. 5). In clinical medicine, the weaker standard of "preponderance of the available evidence" is considered to be adequate; however, preventive medicine must rest on a stronger standard. This stronger standard is related to two important differences in preventive public health measures compared to patient–provider interactions: with whom the interaction originates and the expected benefit to the individual (Malm 2002). In the first place, "our general theory of moral responsibility … entails that the more one is responsible for the occurrence of an event, the more one is responsible for the outcome of the event, and the medical imperative to do no harm" (p. 4). When a member of the public initiates an encounter with a health professional, the provider is obliged to offer the best information available, while the individual assumes a portion of responsibility for evaluating and enacting the information provided. Additionally, since preventive public health measures may in fact provide little, if any, benefit to a specific individual, the individual should also be exposed to little, if any, harm. With public health messages, experts—not the public—initiate the encounter between individual and information about behavior change and must assume responsibility for outcomes and be accountable for negative effects, though these may be unintended or unforeseen. In a public health emergency, it may be difficult to determine when providing potential benefit or ensuring no harm should take priority, and pragmatic concerns about expediency may trump evidentiary standards. However, when there is no emergency, there is no preexisting moral imperative that "something must be done." In this case, the principle of non-malfeasance takes precedence: "… it is more important not to harm someone than it is to help them" (Holland 2015, p. 38), and a higher standard of evidence should prevail.

Historical context of public health nutrition guidance

To be clear, this critique is not directed at dietary guidance to prevent nutritional deficiencies in individuals, but at population-wide dietary health recommendations to prevent chronic diseases such as heart disease, cancer, and diabetes, as well as obesity, which is regarded as a disease in public health discourse. Prior to the creation of the Dietary Guidelines for Americans (DGA) in 1980, official federal dietary guidance was based primarily on assisting the public in choosing a varied diet that would prevent diseases of deficiency; importantly, no foods were singled out as uniquely healthful or harmful. In contrast, the DGA were the first public health nutrition recommendations to suggest that all Americans could use one dietary prescription to reduce the risk of a wide array of chronic diseases not specifically nutritional in nature. As the foundation of U.S. federal public health nutrition policy, the DGA provide the scientific rationale and policy basis for all government programs and practices related to nutrition, including research, public health promotion, and federally mandated food labels (United States 2010). The DGA also create a framework for beliefs and practices that

drives consumer demand, shapes how food manufacturers formulate products, and directs the work of scientists, healthcare professionals, food system reformers, and the media. The DGA define a healthy diet as one that reduces or avoids certain food components—namely fat, saturated fat, cholesterol, and sodium—and increases others, such as carbohydrate, fiber, and polyunsaturated fats. In other words, good nutrition to prevent chronic disease means eating less meat and fewer whole fat animal products; avoiding processed foods high in trans fats, refined grains, or added sugars; and consuming more fruits, vegetables, whole grain products, and vegetable oil. Good nutrition also means balancing calories in with calories out to avoid weight gain. This recommended dietary pattern is thought to have beneficial effects on those biomarkers associated with chronic disease whose measurement and monitoring dominate interactions between patients and healthcare providers: weight, serum cholesterol, and blood pressure (Dietary Guidelines Advisory Committee [DGAC] 2015). Within the neoliberalist framework of "privatized market solutions to public problems" (Crawford 2006), the DGA provide a rationale for having individuals assume responsibility for their own health outcomes. By indicating which foods and dietary patterns will either prevent or contribute to the development of disease, the DGA are a measure by which food eaten by individuals—and indeed individuals themselves—may be judged relative to a standard endorsed by the federal government and promulgated by experts.

In this way, the DGA reflected a long tradition in America of nutrition guidance acting as an instrument of social management. Along with the information about how to avoid chronic disease, as established by the DGA, came the obligation for individuals to apply this guidance to their lives. Advice about "good nutrition" may reference nutrition science for its authority, but it has always come with a moral imperative to be a "good eater" (Biltekoff 2013). Although the DGA are treated as "simply a means of conveying facts of food and health" (Biltekoff 2012, p. 173), this guidance emerged from a complex interaction of social norms, historical context, and paradigmatic thinking that made following the precepts of "good nutrition" a moral obligation of good citizenship.

Senator George McGovern's Senate Select Committee on Nutrition and Human Needs, "began life as a soldier in the War on Poverty" (Oppenheimer and Benrubi 2013, p. 60). Formed in 1968 to address issues of malnutrition, the work of the Committee had been so successful in developing legislation that led to the creation of groundbreaking and highly praised hunger relief and food assistance programs that it shifted its attention to issues of "overnutrition" (Oppenheimer and Benrubi 2013). In 1977, the Committee issued a report called the *Dietary Goals for the United States* which tied an "epidemic" of killer diseases—obesity, diabetes, heart disease, stroke, and cancer—to changes in the American diet, specifically the increase in "fatty and cholesterol-rich foods" (Select Committee on Nutrition and Human Needs of the United States Senate 1977a, p. 3). However, many nutrition scientists saw the situation differently. Alfred Harper, the then chairman of the Food and Nutrition Board of the National Academy of Sciences, asserted that the apparent increase in chronic disease was related to the fact that Americans were generally healthier

and living longer; when adjusted for age, rates of many chronic diseases were actually decreasing: "A far stronger case can be made for concluding that the changes in our food supply during this cen-tury have been associated with improved rather than deteriorating health" (Broad 1979, p. 1061). Despite little evidence that the recommendations would be benefi-cial or were even needed, the suggested dietary modifications would become the basis for the first DGA and all that followed (Truswell 1987), but not because of uniformly convincing scientific evidence or a public health emergency. Rather, this guidance utilized nutrition science to respond to numerous social, political, and economic forces of the time.

In general, the shift in dietary guidance from acquiring adequate nutrition to preventing chronic disease supported a shift in thinking about public health that took place during the 1970s. During this decade, efforts to create a national health insurance plan lost momentum as inflation led to rising healthcare prices and a focus on cost control (Eisenberg 1977). In addition, after the successful eradication of many communicable diseases, cures for chronic diseases were elusive. Ideas about public health began to be reconceptualized around programs of prevention and individual responsibility. Federal dietary guidance to prevent chronic disease became central to the establishment of a neoliberal social order where individual responsibility for health, facilitated by products and services from the marketplace, replaced "collective responsibility for economic and social well-being" (Crawford 2006, p. 409). Pursuing good health through adherence to "good nutrition" became a central value in middle-class American life and a hallmark of responsible citizenship.

Specific recommendations to reduce the use of animal products were tied to these and a host of other cultural and political issues. During the energy crisis of the 1970s, food prices, especially for meat, shot up; housewives staged meatless Monday protests, not to promote vegetarianism, but to force meat producers to lower their prices. At the same time, droughts in Russia and Africa fueled predictions that the world might run out of food. America's ability to feed other nations had a myriad of political implications as well as humanitarian ones; at least theoretically, reducing meat consumption would divert grain fed to livestock to hungry populations across the globe. Meanwhile, since the 1960s, the American Heart Association (AHA) had been promoting a theory that eating less meat and animal fat could reduce the risk of heart disease. These events played out against a background of changes initiated by the then Secretary of Agriculture Earl Butz in response to criticisms that the U.S. agricultural system was inefficient. Policies he instituted shifted land use to make room for additional corn, wheat, and soybean crops (Butz 1976). The dietary recommendations contained in McGovern's 1977 Senate report—which told the public to consume fewer animal products, eat more grain and cereal products, and to use corn and soybean oil instead of animal fats like butter and lard—fit neatly into the USDA's (United States Department of Agriculture's) mandate to grow the agricultural economy. Typically, animal products undergo less processing after leaving the farm than corn, wheat, and soy products. Having consumers shift their purchases from less- to more-processed

foods adds value to the agricultural economy through increased processing, marketing, and associated labor costs, without increasing production (Pyle 2005). Reformulating processed grain and cereal products to conform to DGA recommendations by replacing animal fats with corn and soybean oil would not only increase the amount of processing going into those foods, but also it would allow manufacturers to advertise these products as healthier alternatives to the original. At the same time, recommendations for a more plant-based diet supported progressive visions of conserving resources and feeding the hungry and addressed middle-class concerns with preventing disease and saving money on food.

Ethical issues in current public health nutrition guidance

In this regard, McGovern's 1977 report, which was to become the basis for the 1980 DGA, is an example of what Mayes and Thompson (2015) describe as "nutritional scientism," an appeal to nutrition science in order to justify cultural or ideological views about food and health (p. 593). McGovern's committee was sympathetic to progressive ideology related to reducing meat consumption; their report relied on studies of vegetarian populations and a vegetarian cookbook to make the case that meat and animal products were not only unhealthy but a waste of resources (Select Committee 1977a). They also knew how controversial dietary guidance to reduce meat, eggs, butter, and whole milk would be and they would have to present "the scientific integrity of the report" as "beyond question" (Austin and Hitt 1979, p. 326). However, scientific support for this dietary guidance was itself controversial and tended to fall along ideological lines. As Weed (1997) has noted, scientists may "hold different opinions about which scientific values are important to the assessment of evidence," and there are indications that extra-scientific values, not the least of which is the desire to have the correct hypothesis, influence how evidence is evaluated (p. 118). In general, scientists who supported the diet–heart hypothesis promoted by the AHA, which posited a causal link between animal fats in the diet and heart disease, felt that available evidence was adequate for creating national dietary guidelines; having their hypothesis ensconced as national policy would be a powerful endorsement of their view. In contrast, many scientists, including some who were also aligned with the diet–heart hypothesis, felt evidence was insufficient for population-wide guidance to be given (Select Committee on Nutrition and Human Needs, United States Senate 1977b). This conflict points to the ethical question implicit in long-term preventive public health guidance that Malm (2002) addresses: "What quality and quantity of evidence should be required before guidance to prevent chronic disease through lifestyle changes is given to the public?" This question cannot be answered by science or scientists but is rather a matter of public policy with significant ethical implications.

Early critics of the first federal dietary guidance for the prevention of chronic disease called attention to the moral dilemmas inherent in recommending long-term dietary changes without strong evidence. First, many felt it was inappropriate to offer one diet to reduce the risk of multiple diseases across an entire

diverse population with evidence based primarily on observational studies that could not establish cause–effect relationships (Select Committee 1977b, p. 705). Furthermore, scientists argued that without stronger forms of evidence and explicit testing of the proposed guidance, there was no guarantee that the recommended dietary changes would not cause harm (Select Committee 1977b, p. 666). Both of these concerns continue to haunt current federal dietary guidance, raising ethical issues related to quality and quantity of evidence needed to make recommendations and to uphold the directive to "first do no harm." Since DGA standards for "good nutrition" have become hegemonic, scientific uncertainties and limitations present at the start have become obscured.

Yet as the political power of the DGA has grown, so has the number of Americans designated as "unhealthy." The DGA standards for "good nutrition" have been widely accepted, but as a public health intervention, they have not been widely successful. Since the creation of the DGA in 1980, age-adjusted rates of diabetes in the United States have doubled (Centers for Disease Control and Prevention 2013). Age-adjusted incidence of all cancers has gone up (Siegel, Miller, and Jemal 2015, p. 12). Although cardiovascular disease mortality has decreased, incidence of heart disease, as indicated by hospital admission rates, has not (Cohen et al. 2015). Additionally, although body weight is not necessarily a measure of health, the prevalence of obesity in the United States has doubled (DGAC 2010). The failure of the DGA to help Americans prevent increases in chronic disease is typically seen as a problem of compliance (DGAC 2010), even though Americans appear to have made some efforts to shift their dietary intake toward DGA recommendations (Cohen et al. 2015). From this perspective, the effectiveness of the DGA has been limited due not to concerns regarding their evidentiary base or ethical implications, but to the failure of Americans to do as they have been told. This narrative of blame exempts the DGA from criticism, leaving intact two related assumptions regarding the scientific justification behind the DGA and the presumed outcomes of their implementation as policy: that nutrition science has reliably determined how food and health outcomes are related, and that there are no potential negative effects related to public health nutrition policies to prevent chronic disease and obesity. A reexamination of these assumptions suggests alternative explanations for the unfolding of negative consequences predicted by earlier critics and calls for a reexamination of the ethical and evidentiary concerns present when the DGA were first created.

Assumption: Nutrition science has determined what dietary patterns prevent chronic disease

The DGA were established under the assumption that nutrition science had provided policymakers with a consensus on how food and chronic disease are related. This view relied heavily on a relatively new field, nutritional epidemiology of chronic disease, whose methodology cannot be used to directly establish cause–effect relationships. As a result, causality must be established rhetorically, through "causal web" or "causal pie" models made up of "risk factors," which

can ostensibly account for the multifactorial etiology of chronic disease. Nancy Krieger (2011) has written extensively about the lack of non-methodological theory in epidemiology, a situation in which hypothesized causal factors may be treated as "self-evident, requiring no analysis, or else simply a matter of idiosyncratic inspiration (or ideological proclivities)" (p. 273). Since one of the primary conceptual commitments in epidemiology is to biologic causes of disease in individuals, investigations tend to be limited to factors that can be addressed through individual behavior change (Krieger 1994). In nutritional epidemiology, many environmental exposures that could affect food choice—such as dietary guidance given by authoritative organizations—are disregarded entirely. The paradoxical effect is that when data are collected from the American population, norms based on "good nutrition" guidance are part of the social context in which respondents live, but their potential influence on reported behavior is never acknowledged. For example, the educated healthcare professionals who constitute the datasets commonly used to examine diet–chronic disease relationships—such as Harvard's Nurses' Health Study and Health Professional's Follow-Up Study—would not only be familiar with DGA guidance, they would also be educated in the low-fat, heart-healthy paradigm of the AHA. They would be exposed to advertising and products proclaiming the health benefits of foods that conform to DGA and AHA recommendations. Whether or not they followed this advice, the participants in those studies would have known how a healthy diet was defined and what the "right" answers to the study questionnaires would be. Furthermore, these observational studies fail to account for the social pressures within the demographics typically surveyed to follow, or at least to agree with, "good nutrition" principles.

Influenced by guidance from the AHA and other groups, members of the middle and upper classes had begun to take up behaviors important to the pursuit of health, such as reducing fat in their diets and exercising, even before the DGA were created (Crawford 2006; Woolf and Nestle 2008). Nutritional observational studies conducted since the late 1960s would be informed by this social context, potentially confirming normative health behaviors as scientific findings. The "healthy user" or "healthy adherer" effect is a source of bias in observational studies that occurs when individuals who are more compliant with health-related directives have better health outcomes than individuals who are less compliant, even when "compliance" has no material effect on health. In randomized clinical trials, adherence to medication regimes appears to reduce risk of morbidity and mortality from causes not related to the medication's mechanism; for example, participants who take their assigned medication faithfully have better results than those who do not, even if their medication is a placebo (Simpson et al. 2006, p. 1). Compliant individuals are healthier than their non-compliant counterparts not because the therapy they are compliant with is necessarily effective—such as a placebo or a set of dietary rules—but because compliance is "a surrogate marker for overall healthy behavior" (Simpson et al. 2006, p. 5).

Nutritional epidemiology studies consistently demonstrate that those with better health outcomes are more likely not only to engage in many health-related behaviors,

in addition to "good nutrition," but also to have higher education and income levels (Satia 2009); in other words, they are more likely to actively pursue health because they are more likely to have a stake in the moral valuation of its pursuit. In these studies, there is no way to differentiate between advantages that accompany the privileged class status of most "healthy adherers," their other health-related behaviors, and actual health effects of "good nutrition"; researchers simply attribute the better health outcomes of more privileged groups to their better dietary habits. A self-perpetuating "consensus" of findings results: people concerned about health eat a "healthy diet;" a "healthy diet" is one people concerned about health eat.

This tautology raises critical ethical issues when examining disparities between demographics of populations studied and those to which related policy is applied. The majority of studies produced in nutritional epidemiology are based on data drawn from white, middle-class, middle-aged professionals, such as the Nurses' Health Study and the Health Professionals Follow-up Study (Hite and Schoenfeld 2015). Yet it is exactly the populations not represented in these studies—older adults, young children, minority, and low-income populations—that are most likely to have their dietary patterns dictated at least in part by regulations drawn from the DGA. When more diverse populations are studied—minorities or low-income eaters, for example—a different picture of diet–chronic disease relationships emerges; in these populations, the DGA's version of "good nutrition" is less likely, not more likely, to be associated with good health (Zamora et al. 2010; Ben-Shalom et al. 2012).

This disconnect is tied to the logic of public health intervention as a matter of population, rather than individual, benefit. Associations are based on population averages, which only indicate when enough people benefit from a treatment or observed dietary pattern to create a statistically significant difference from a comparison group; when populations studied are largely homogeneous, differential outcomes in minority subgroups are undetectable (Kaput 2008). Furthermore, when a bell curve shifts due to a population intervention, there is no way to say whether any given individual or subgroup benefitted (Charlton 1995). In dietary studies, the size of associations between diet and chronic disease outcomes is so weak, with relative risks of the order of 0.8–1.2 (Potischman and Weed 1999), that it is clear that most people do not benefit at all. Nevertheless, when we "treat" an entire population in order to reduce risk for some members of that population, buy-in from individuals is often achieved through a rhetoric of risk: correlation in an observed population becomes causation for an individual; "reduces the population-level risk of a disease" becomes "prevents this disease for you as an individual." This type of persuasion is considered acceptable because it is accompanied by the assumption that there is little risk associated with recommendations to eat a reduced-fat, calorie-restricted, plant-based diet. However, prevention through the population strategy, as Paul Marantz (2010) has pointed out, is a double-edged sword. Small benefits may be magnified when applied to a population, but so may small harms. In fact, the assumption that there are no harms to population-based dietary recommendations for the prevention of chronic disease is an erroneous one.

Assumption: There are no risks related to public health nutrition recommendations

The second assumption foundational to the DGA is that highest standards of evidence were not necessary for providing population-wide dietary recommendations to prevent chronic disease because there were virtually no risks related to these recommendations**.** This argument appears to have been based primarily on the belief that Americans in the early twentieth century, along with many other populations across the globe, experienced no negative consequences by consuming a diet similar to the one recommended by federal dietary guidance to prevent chronic disease (Weil 1979). For example, early supporters of this guidance argued that at the beginning of the twentieth century, Americans ate more fruit, vegetables, and grain products and had less chronic disease (Select Committee 1977a, p. 1). At the same time, critics pointed out that, in the early 1900s, Americans had shorter life spans, which would preclude the development of chronic disease, and suffered more frequently from diseases of malnutrition (Select Committee 1977b). More importantly, other populations—including the American population of the past—were not only vastly different from the American population being addressed in the DGA, but had arrived at their presumably healthier dietary patterns through historical, geographical, sociocultural, and economic influences, not through public health directives. This points to a corollary assumption made by the creators of the first DGA: potential negative effects of the DGA would be essentially nonexistent because uptake would be voluntary. When the DGA were first being developed, they were directed at consumers, with the U.S. Surgeon General asserting, "Individuals have the right to make informed choices and the government has the responsibility to provide the best data for making good dietary decisions" (Richmond 1979, p. 2621). This rhetoric of choice failed to anticipate the exponential manner in which the influence of the DGA would expand; eventually, policy language would mandate the application of the DGA to all nutrition-related federal activities, including school lunches, labeling laws, and research agendas. The assumption that personal choice would remove any potential for harmful effects related to DGA guidance not only overlooks unanticipated risks associated with voluntary compliance but also fails to acknowledge risks associated with effects of dietary guidance that are beyond individual control. Acknowledgment of these previously unexamined risks indicates that failure of the DGA to achieve positive health outcomes is not due solely to lack of compliance.

A general risk associated with urging Americans to alter their dietary patterns is the risk of divergent food–health interactions: versions of "good nutrition" that may decrease the risk of one health concern may increase the risk of another. With heart disease being the leading cause of death in the United States, the science that formed the basis for the first DGA focused primarily on development of that disease. Supporters of the DGA point to a decrease in heart disease mortality that has occurred over the past 35 years, attributing it to dietary changes made in alignment with DGA recommendations: increased consumption of flour and cereal products

and vegetable oils (Hu et al. 2000). Although scientists have also acknowledged that obesity rates climbed when Americans replaced dietary fat with starches and sugars (Dietary Guidelines Advisory Committee [DGAC] 2000), this has been attributed to Americans "overeating" rather than the nature of the recommendations. However, a good faith attempt to reduce dietary fat, saturated fat, and cholesterol does not necessarily mean that the recommended nutrient targets will be reached. Increased hunger and decreased satiety that might result from changing dietary patterns could also lead to consumption of more overall calories (Cohen et al. 2015). Early critics of population-wide guidance to prevent chronic disease pointed to both risk of malnutrition associated with a reduced intake of animal products and risk of health problems associated with foods recommended to replace them (Select Committee 1977b). Now, over 40% of the population has inadequate protein intake, and adolescent and premenopausal women, particularly from minority populations, are at risk for iron deficiency anemia; animal products and meat in particular, foods the DGA say should be limited, are rich sources of both nutrients (U.S. Department of Health and Human Services and U.S. Department of Agriculture 2016). Vegetable oils may decrease cholesterol levels—and thus lower the risk of heart disease—but might increase the risk of cancer (National Research Council Committee on Diet and Health 1989); for individuals with a family history of diabetes, replacing fat with carbohydrate might increase the risk of chronic disease, rather than lower it (Reaven 1986).

Loss of traditional foods that do not "fit" DGA recommendations is another risk. Under "good nutrition" principles, foods that are both culturally and nutritionally valuable are often stigmatized as dangerously unhealthy unless prudently modified. However, some traditional foods are the way they are for a reason. In Southern soul food cooking, salt pork cuts the bitter taste of greens, while fatback provides a vehicle for flavor as well as fat-soluble vitamins. Greens made with little or no salt or fat do not taste "right" to many people, and as a dietitian, I found that Southerners who were told to give up salt pork and fatback used to cook greens were likely to give up greens altogether. In my dietetics training, I was taught to respect the values of those who, for cultural, religious, or personal reasons, consumed vegetarian or vegan diets. Similarly, many individuals value animal products as a central part of their food heritage: sausages of Eastern Europe and China; ghee, or clarified butter, of India; chorizo and eggs of Latin America. Although the DGA have paid lip service to the notion that diets from all cultural traditions can be part of "good nutrition," when it comes to animal products, dietitians are trained to engage in what I call "pork-shaming"—counseling people how to eliminate, limit, or modify use of traditional animal-based foods in order to avoid saturated fat and cholesterol. In this way, the DGA work to discourage many aspects of ethnic diets in favor of a normative standard based on Anglo-Saxon food habits. To be "multiculturally competent" as a dietitian is to ensure that "clients' traditional health beliefs and diet are being balanced with healthy American food choices" (Holli et al. 2009, p. 169).

The previous risks assume that individuals make some effort to follow the dietary guidance they have been given, an assumption few public health experts

endorse. However, the DGA reach far beyond individual "choice" about what to eat. The U.S. food system and healthcare system are complex, vast, and interconnected. The DGA affect how healthcare professionals are trained in nutrition, what goes into food products and how they are labeled, and what consumers come to believe about diet and disease relationships and about themselves, now and in the future, as the DGA also influence nutrition research agendas and the education of scientists. Thus, since the responsibility for limiting harmful "lifestyle" exposures has increasingly been laid on the individual, environmental levels of an exposure with its own set of risks have increased, namely dietary health recommendations based on populations rather than individuals. Even a determined individual with adequate resources who asks a healthcare provider for an individualized diet to address health concerns runs the risk of being unwittingly exposed to DGA influence. Once normative "good nutrition" principles have been established through acceptance of nutritional epidemiology methods, and these preventive dietary health recommendations are taught as part of health professionals' education, there is a very real risk that a clinician may end up treating individual patients using a public health "lens." Before even meeting the patient, outlines for intervention are clearly indicated and healthcare providers may fail to consider—or even be aware of the existence of—alternative paths to dietary health.

The DGA not only affect nutrition education of healthcare professionals but also they produce widespread uniform changes throughout the food supply. Since consumers are taught to reject certain food components as "unhealthy," novel ingredients introduced into the food supply to replace them may create new health risks. Shortly after the first DGA warned Americans to limit their intake of foods containing saturated fat and cholesterol, a public health advocacy group, Center for Science in the Public Interest, began a successful campaign to have food manufacturers use hydrogenated vegetable oils to replace ingredients like butter and lard, insisting that *trans* fats posed no health risks: "Nearly all targeted firms responded by replacing saturated fats with *trans* fats" (Schleifer 2012). Sixteen years later, the same group began a campaign to have *trans* fats removed from the food supply due to concerns about their association with heart disease. High fructose corn syrup also offered a cheap, plentiful replacement for saturated fats in manufactured foods, and it also is now considered to pose its own risks to health (Lustig 2013).

The DGA's presumption that science has adequately determined which foods should or should not be eaten in order to reduce risk of disease leads to the inevitable conclusion that individuals should be able to control health outcomes through the "right" food choices, but in fact the influence of the DGA on the food–health environment makes notions of individual agency, willpower, and "food choice" problematic with regard to dietary health. Nevertheless, "'healthy' food choice has become an ethical act expected of all rational individuals" (Mayes and Thompson 2014, p. 159). One of the risks associated with this assumption is creation of a population of "worried well," whose attention is focused on preventing illness, rather than enjoying the health they have. Food may come to be viewed as a magic talisman, warding off or inviting evil in the form of chronic disease,

and health may be seen as an "end in itself," one which reveals the moral worth of those who possess it (Crawford 1980; Harper 1988). However, one of the most serious risks of this assumption is that it permits evaluation of anyone whose health or body size seems to indicate violations of the dietary-moral code as somehow inferior or abnormal. For example, the 2010 DGA recognize a discrepancy similar to the one which I noted at the beginning of this chapter, observing that average caloric intakes recorded from national data "do not appear to be excessive, [but] the numbers are difficult to interpret because survey respondents, *especially individuals who are overweight or obese,* often underreport dietary intake" (emphasis added; U.S. Department of Agriculture and U.S. Department of Health and Human Services 2011). In other words, the official conclusion is that people who are overweight and obese are likely to lie about how much they eat when asked. The ethical implications of linking body size with moral character are clearly problematic. Beyond that, it is unclear what public health purpose is served by an enterprise that assumes or compels deception on the part of the population it means to assist and doubts the character of individuals before doubting the appropriateness of the advice dispensed.

Finally, the DGA present broad risks to public health more generally. Early critics of federal dietary guidance for the prevention of chronic disease suggested that a focus on individual responsibility for prevention would result in "trivial and superficial approaches to health promotion" and shift attention away from the government's responsibility to improve economic, environmental, and social conditions related to health (Eisenberg 1977, p. 1232). Public health campaigns and research agendas based on the DGA represent money and effort diverted from public health endeavors which may have proved more effective in safeguarding health. Importantly, basing widely promoted public health directives on insufficient evidence presents a risk of misuse of public health authority and loss of trust when better evidence contradicts original guidance or when promised results do not materialize (Harper 1988). Also, when evidentiary and ethical considerations are not addressed at the creation of preventive public health policies, such reversals and failures are inevitable.

Toward the creation of ethical public health nutrition policy

To be sure, these are not a full accounting of the potential risks associated with population-wide dietary guidance based on limited evidence (see Charlton 1995; Malm 2002; Mayes and Thompson 2014); however, those risks outlined above, as well as others, relate on the whole to the issue of scientific uncertainty. As Sheila Jasanoff (2003) has pointed out, "To date, the unknown, unspecified, and indeterminate aspects of scientific and technological development remain largely unaccounted for in policy-making" (pp. 239–240). This is particularly true in public health nutrition policy making, where methodologies available for ascertaining links between diet and chronic disease all have distinct limitations, and an evidentiary standard of "beyond a reasonable doubt" may be difficult to reach in many cases. Employing Jasanoff's (2003) "technologies of humility" — which

call for admitting uncertainties and risks, revealing the normative within the scientific, and acknowledging the diversity of bodies and values served by public health nutrition policies—would be a move toward development of more ethical public health nutrition policy.

When public health officials encourage asymptomatic individuals to change their lifestyle habits in order to prevent diseases which may or may not develop in a given individual regardless of behavior, it is imperative that the principle of non-malfeasance be openly addressed. When unambiguous evidence is unlikely to be forthcoming, as is the case with nutrition, uncertainties and risks should be evaluated with input from bioethicists and experts in policy development, not just nutrition scientists. Furthermore, policymakers should recognize that generation of nutrition knowledge is in and of itself a normative practice. Population-level aggregate data may not adequately address differences—genetic, economic, social—that impact health in ways separate from and overlapping with diet. At the very least, populations observed should be commensurate with populations to which a policy will be applied. In addition, public health nutrition policy must be developed with an awareness of the diversity of meanings and values surrounding both food and health. Mayes and Thompson (2014) argue, "those who use nutrition evidence to command individual food choices have an ethical burden to articulate why the biomedical value of food should be prioritized over and perhaps to the exclusion of values such as pleasure, comfort, belonging or well-being" (159). This ethical burden is heightened when there is an honest acknowledgment of limitations of that evidence.

The above approaches may serve to ameliorate public health nutrition policy already in place, as the DGA are revised, expanded, and further implemented; however, they do not fully address a central ethical issue tied to current narratives of responsibility surrounding the DGA. Public health nutritionists have maintained that deciding "whether the evidence is good enough to recommend population-based dietary changes comes down to a matter of subjective judgment" (Woolf and Nestle 2008, p. 263). However, outside of public health emergencies, it is not the case that recommendations have to be made at all. When a decision is not morally imperative and evidence linking diet and chronic disease is unclear enough to render its evaluation "a matter of subjective judgment," whose judgment prevails and whose values are represented are issues of politics, power, and privilege, not issues of science or public health. In those cases, when what is truly needed is "less advice and more information" (Reaven 1986), the ethical burden for the outcome of a policy lies with those who insist it is necessary.

REFERENCES

Austin, J. E. and C. Hitt. 1979. *Nutrition Intervention in the United States: Cases and Concepts*. Cambridge, MA: Ballinger Publishing Co.

Bahl, R. 2015. The evidence base for fat guidelines: A balanced diet. *Open Heart* 2(1). doi: 10.1136/openhrt-2014-000229.

Bayer, R., L. O. Gostin, B. Jennings, and B. Steinbock (eds.). 2007. *Public Health Ethics: Theory, Policy, and Practice*, 1st ed. New York: Oxford University Press.

Ben-Shalom, Y., M. K. Fox, and P. K. Newby. 2012. *Characteristics and Dietary Patterns of Healthy and Less-Healthy Eaters in the Low-Income Population*. U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis. Alexandria, VA

Biltekoff, C. 2012. Critical nutrition studies. In *The Oxford Handbook of Food History*, edited by J. M. Pilcher. New York: Oxford University Press, pp. 172–190.

Biltekoff, C. 2013. *Eating Right in America: The Cultural Politics of Food and Health*. Durham: Duke University Press.

Broad, W. 1979. Jump in funding feeds research on nutrition. *Science* 204(4397):1060–1061. doi: 10.1126/science.451549.

Broad, G. and A. Hite. 2014. Nutrition troubles. *Gastronomica: The Journal of Food and Culture* 14(3):5–16. doi: 10.1525/gfc.2014.14.3.5

Butz, E. L. 1976. An emerging, market-oriented food and agricultural policy. *Public Administration Review* 36(2):137. doi: 10.2307/975128.

Carter, S. M., L. Rychetnik, B. Lloyd, I. H. Kerridge, L. Baur, A. Bauman, C. Hooker, and A. Zask. 2011. Evidence, ethics, and values: A framework for health promotion. *American Journal of Public Health* 101(3):465–472. doi: 10.2105/AJPH.2010.195545.

Centers for Disease Control and Prevention. 2013. *Number (In Millions) of Civilian, Noninstitutionalized Persons with Diagnosed Diabetes, United States, 1980–2011*. National Center for Health Statistics, Division of Health Interview Statistics. National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. http://www.cdc.gov/diabetes/statistics/prev/national/figpersons.htm

Charlton, B. G. 1995. A critique of Geoffrey Rose's 'Population Strategy' for preventive medicine. *Journal of the Royal Society of Medicine* 88(11):607–610.

Cohen, E., M. Cragg, J. de Fonseka, A. Hite, M. Rosenberg, and B. Zhou. 2015. Statistical review of U.S. Macronutrient Consumption Data, 1965–2011: Americans have been following dietary guidelines, coincident with the rise in obesity. *Nutrition (Burbank, Los Angeles County, Calif.)* 31(5):727–732. doi: 10.1016/j.nut.2015.02.007.

Crawford, R. 1980. Healthism and the medicalization of everyday life. *International Journal of Health Services: Planning, Administration, Evaluation* 10(3):365–388.

Crawford, R. 2006. Health as a meaningful social practice. *Health* 10(4):401–420. doi: 10.1177/1363459306067310.

Dietary Guidelines Advisory Committee (DGAC). 2000. *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2000*. Washington, DC: U.S. Department of Agriculture and U.S. Department of Health and Human Services. http://www.health.gov/dietaryguidelines/dgac/pdf/dgac_ful.pdf

Dietary Guidelines Advisory Committee (DGAC). 2010. *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010*. Washington, DC: U.S. Department of Agriculture and U.S. Department of Health and Human Services. http://www.cnpp.usda.gov/sites/default/files/dietary_guidelines_for_americans/2010DGACReport-camera-ready-Jan11-11.pdf

Dietary Guidelines Advisory Committee (DGAC). 2015. *Scientific Report of the 2015 Dietary Guidelines Advisory Committee*. Washington, DC: U.S. Department of Health and Human Services and U.S. Department of Agriculture.

Eisenberg, L. 1977. The perils of prevention: A cautionary note. *The New England Journal of Medicine* 297(22):1230–1232. doi: 10.1056/nejm197712012972210.

Harper, A. E. 1988. Killer French fries. *Sciences* 28:21–27.

Hite, A. H. and P. Schoenfeld. 2015. Open letter to the secretaries of the U.S. Departments of Agriculture and Health and Human Services on the Creation of the 2015 Dietary Guidelines for Americans. *Nutrition (Burbank, Los Angeles County, Calif.)* 31(5):776–779. doi: 10.1016/j.nut.2014.12.019.

Holland, S. 2015. *Public Health Ethics*, 2nd ed. Malden, MA: Polity Press.

Holli, B. B., J. O. Maillet, J. A. Beto, and R. J. Calabrese (eds.). 2009. *Communication and Education Skills for Dietetics Professionals*, 5th ed. Philadelphia: Wolter Kluwer Health/Lippincott Williams & Wilkins.

Hu, F. B., M. J. Stampfer, J. E. Manson, F. Grodstein, G. A. Colditz, F. E. Speizer, and W. C. Willett. 2000. Trends in the incidence of coronary heart disease and changes in diet and lifestyle in women. *New England Journal of Medicine* 343(8):530–537. doi: 10.1056/nejm200008243430802.

Jasanoff, S. 2003. Technologies of humility: Citizen participation in governing science. *Minerva* 41(3):223–244. doi: 10.1023/A:1025557512320.

Kaput, J. 2008. Nutrigenomics research for personalized nutrition and medicine. *Current Opinion in Biotechnology* 19(2):110–120. doi: 10.1016/j.copbio.2008.02.005.

Krieger, N. 1994. Epidemiology and the web of causation: Has anyone seen the spider? *Social Science & Medicine* 39(7):887–903.

Krieger, N. 2011. *Epidemiology and the People's Health Theory and Context*. New York: Oxford University Press.

Lustig, R. H. 2013. Fructose: It's 'Alcohol without the buzz'. *Advances in Nutrition: An International Review Journal* 4(2):226–235. doi: 10.3945/an.112.002998.

Malm, H. 2002. 'Do this, it could save your life!' and other problematic claims in preventive medicine. *Newsletter on Philosophy and Medicine/American Philosophical Association* 1(2 Revised):3–9.

Marantz, P. R. 2010. Rethinking dietary guidelines. *Critical Reviews in Food Science and Nutrition* 50(s1):17–18. doi: 10.1080/10408398.2010.526846.

Mayes, C. R. and D. B. Thompson. 2014. Is nutritional advocacy morally indigestible? A critical analysis of the scientific and ethical implications of 'healthy' food choice discourse in liberal societies. *Public Health Ethics* 7(2):158–169. doi: 10.1093/phe/phu013.

Mayes, C. R. and D. B. Thompson. 2015. What should we eat? biopolitics, ethics, and nutritional scientism. *Journal of Bioethical Inquiry* 12(4):587–599. doi: 10.1007/s11673-015-9670-4.

National Research Council Committee on Diet and Health. 1989. *Diet and Health: Implications for Reducing Chronic Disease Risk*. Washington, DC: National Academies Press (US). http://www.ncbi.nlm.nih.gov/books/NBK218743/

Oppenheimer, G. M. and I. D. Benrubi. 2013. McGovern's Senate Select Committee on Nutrition and Human Needs Versus the Meat Industry on the Diet-Heart Question (1976–1977). *American Journal of Public Health* 104(1):59–69. doi: 10.2105/ajph.2013.301464.

Potischman, N. and D. L. Weed. 1999. Causal Criteria in Nutritional Epidemiology. *The American Journal of Clinical Nutrition* 69(6):1309s–1314s.

Pyle, G. 2005. *Raising Less Corn, More Hell: The Case for the Independent Farm and against Industrial Food*. New York: PublicAffairs.

Reaven, G. M. 1986. Effect of dietary carbohydrate on the metabolism of patients with non-insulin dependent diabetes mellitus. *Nutrition Reviews* 44(2):65–73. doi: 10.1111/j.1753-4887.1986.tb07589.x.

Richmond, J. B. 1979. Foreword. *American Journal of Clinical Nutrition* 32(12):2621–22.

Satia, J. A. 2009. Diet-related disparities: Understanding the problem and accelerating solutions. *Journal of the American Dietetic Association* 109(4):610–615. doi: 10.1016/j.jada.2008.12.019.

Schleifer, D. 2012. The perfect solution. How trans fats became the healthy replacement for saturated fats. *Technology and Culture* 53(1):94–119.

Select Committee on Nutrition and Human Needs of the United States Senate. 1977a. *Dietary Goals for the United States*, 2nd ed. Washington: U.S. Government Printing Office. http://catalog.hathitrust.org/Record/000325810

Select Committee on Nutrition and Human Needs, United States Senate. 1977b. *Dietary Goals for the United States: Supplemental Views*. Washington, DC: U.S. Government Printing Office. https://babel.hathitrust.org/cgi/pt?id=umn.31951d00283417h;view=1up;seq=1

Siegel, R. L., K. D. Miller, and A. Jemal. 2015. Cancer statistics, 2015. *CA: A Cancer Journal for Clinicians* 65(1):5–29. doi: 10.3322/caac.21254.

Simpson, S.H., D.T. Eurich, S.R. Majumdar, R.S. Padwal, R.T. Tsuyuki, J. Varney and J.A. Johnson. 2006.A meta-analysis of the association between adherence to drug therapy and mortality. *BMJ* 333(7557):15. doi: 10.1136/bmj.38875.675486.55.

Truswell, A. S. 1987. Evolution of dietary recommendations, goals, and guidelines. *The American Journal of Clinical Nutrition* 45(5):1060–1072.

United States. 2010. *2010 Dietary Guidelines for Americans: Backgrounder, History and Process*. Washington, DC: U.S. Department of Agriculture. http://purl.fdlp.gov/GPO/gpo4085

U.S. Department of Agriculture and U.S. Department of Health and Human Services. 2011. *Dietary Guidelines for Americans, 2010*. 7th ed. Washington, DC: U.S. Government Printing Office. http://www.cnpp.usda.gov/DGAs2010-PolicyDocument.htm

U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2016. *Dietary Guidelines for Americans, 2015–2020*, 8th ed. Available at http://health.gov/dietaryguidelines/2015/guidelines/

Weed, D. L. 1997. Underdetermination and incommensurability in contemporary epidemiology. *Kennedy Institute of Ethics Journal* 7(2):107–127.

Weil, W. B. Jr. 1979. National dietary goals. Are they justified at this time? *American Journal of Diseases of Children (1960)* 133(4):368–370.

Woolf, S. H. and M. Nestle. 2008. Do dietary guidelines explain the obesity epidemic? *American Journal of Preventive Medicine* 34(3):263–65. doi: 10.1016/j.amepre.2007.12.002.

Zamora, D., P. Gordon-Larsen, D. R. Jacobs Jr., and B. M. Popkin. 2010. Diet quality and weight gain among black and white young adults: The Coronary Artery Risk Development in Young Adults (CARDIA) study (1985–2005). *The American Journal of Clinical Nutrition* 92(4):784–793. doi: 10.3945/ajcn.2010.29161.