

# Nutrition for the Prevention of Chronic Diseases



Ruth W. Kimokoti, MD, MA, MPH<sup>a,\*</sup>, Barbara E. Millen, DrPH, RD<sup>b</sup>

## KEYWORDS

- Chronic • Diet • *Dietary Guidelines for Americans* • Dietary patterns • Lifestyle
- Noncommunicable diseases • Physicians • Prevention

## KEY POINTS

- Chronic noncommunicable diseases (NCDs) are the leading cause of morbidity and mortality in the United States and globally.
- Suboptimal nutrition is the single leading modifiable cause of NCDs in the United States and globally.
- Healthy dietary and lifestyle patterns, as advocated in the 2015 to 2020 *Dietary Guidelines for Americans*, protect against NCDs.
- Physicians have a vital unique role in promoting a healthy lifestyle at both the individual and the population levels.

## INTRODUCTION

Chronic noncommunicable diseases (NCDs) are the leading cause of morbidity and mortality in the United States and globally, accounting for 70% of all deaths worldwide,<sup>1,2</sup> and are a major priority for intervention by the United Nations and the World Health Organization (WHO).<sup>3,4</sup> They are projected to cost US\$47 trillion over the next 20 years.<sup>5</sup> The NCD epidemic and concerning levels of their metabolic risk factors are driven by the nutrition transition as populations adopt Western-style lifestyles, including unhealthful dietary patterns, physical inactivity, tobacco use, and excess alcohol consumption.<sup>6</sup> Thus, international health experts have called for public policies and preventive interventions at both individual and population levels to reverse these trends and promote well-being.

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Dr B.E. Millen is President of Millennium Prevention, Inc, a life sciences company with a public health mission. It develops Web and mobile platforms on prevention including [www.HealthMain.com](http://www.HealthMain.com) and [www.my.healthmain.com](http://www.my.healthmain.com).

<sup>a</sup> Department of Nutrition, Simmons College, 300 The Fenway, Boston, MA 02115, USA;

<sup>b</sup> Millennium Prevention, Inc, PO Box 311, Westwood, MA 02090, USA

\* Corresponding author.

E-mail address: [ruth.kimokoti@simmons.edu](mailto:ruth.kimokoti@simmons.edu)

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In this report an overview is provided of NCDs and their modifiable risk factors, and the 2015 to 2020 *Dietary Guidelines for Americans* (DGAs),<sup>7</sup> the public policy framework that guides the far-reaching programs, services, and research priority areas of the US Departments of Health and Human Services (HHS) and Agriculture (USDA), is highlighted. The DGAs may considerably impact the US health care and public health systems, the National Institutes of Health, and Centers for Disease Control and Prevention, as well as the elaborate networks of school and community nutrition and health programs under HHS and USDA jurisdiction. There are also many opportunities for impact across sectors relating to food product formulation and food retail as well as the health- and wellness-related industries and the settings they influence, such as corporate and other work sites. Examined are the clinical applications of the DGAs and opportunities to promote prevention-oriented services and programs by physicians and other medical professionals in health care, public health, and community settings, including evidence-based Web and mobile technology. In addition, other recent expert guidelines are summarized on the prevention and management of obesity and the lifestyle management of cardiovascular disease (CVD) risk in the United States.

## TRENDS IN CHRONIC DISEASE RATES AND LIFESTYLE FACTORS

### *Chronic Diseases*

Globally, deaths due to chronic NCDs have increased by 42% in the last 2 decades.<sup>1</sup> In the United States, 117 million American men and women—about half of adults—have one or more NCDs and use 86% of health care expenditure<sup>8</sup> for hospitalizations and treatment. CVDs, diabetes, and lung, colorectal, breast, and prostate cancers disproportionately affect older individuals and minority populations.<sup>8–10</sup> Emerging NCDs of significance include osteoporosis and low bone mass, spina bifida without anencephaly, congenital heart defects, Alzheimer disease, and depression and are likewise commonest in minorities.<sup>8</sup>

### *Lifestyle Factors*

Suboptimal nutrition ranks highest among lifestyle risk factors for NCDs globally and in the United States and has been identified as the most important preventable NCD risk factor.<sup>11,12</sup> Worldwide, despite increased overall intake of healthful foods during the last 2 decades, this was surpassed by higher consumption of less healthful foods.<sup>13</sup>

The 2015 Dietary Guidelines Advisory Committee (DGAC)<sup>8</sup> found that several nutrients, which it characterized as shortfall nutrients, were underconsumed in the United States; conversely, other nutrients were identified as overconsumed. When these nutrients could be linked to adverse health outcomes or prevalent metabolic risk factors, they were classified as *nutrients of public health concern*.

- Vitamins A, D, E, and C, folate, calcium, magnesium, fiber, and potassium are shortfall nutrients in the general population; iron is a shortfall nutrient among adolescent and premenopausal women.
- Calcium, vitamin D, fiber, and potassium are *underconsumed nutrients of public health concern*.
- Saturated fat and sodium are *overconsumed nutrients of public health concern*.

Consistent with the nutrient intake, most Americans have low intakes of key food groups that are important sources of the shortfall nutrients, including vegetables, fruits, whole grains, and dairy. In addition, they overconsume refined grains and added sugars. Consequently, overall dietary quality remains generally poor,<sup>8,9,13,14</sup> and

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