



HHS Public Access

Author manuscript

JAMA. Author manuscript; available in PMC 2017 February 03.

Published in final edited form as:

JAMA. 2015 June 16; 313(23): 2319–2320. doi:10.1001/jama.2015.5287.

Curbing the Diabetes Pandemic: The Need for Global Policy Solutions

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The growing pandemic of diabetes poses an enormous public health challenge for almost every country across the globe.^{1,2} In 2014, more than 380 million people were living with diabetes worldwide, representing 8.3% of the global population. This number is expected to rise to 592 million by 2035. Diabetes is no longer a disease of the affluent, with lower socio-economic groups being disproportionately affected in high income countries (HICs), and 77% of the world's diabetic population living in low and middle income countries (LMICs). It is also no longer predominantly a disease of the old, with almost half of the people with diabetes in the 40–59 year age range. Low and middle income countries face the added challenge of dealing with a dual burden of disease, as they are seeing a rise in obesity and diabetes levels, while still grappling with undernutrition and infectious diseases.³

In 2013, diabetes was associated with an astounding \$548 billion USD in health expenditures globally.¹ This figure is expected to increase when indirect costs due to lost productivity and comorbidities are taken into account. The escalating diabetes pandemic has the potential to overwhelm health care systems and threatens to reverse the gains of economic development in many LMICs. Considering the serious human, societal, and economic consequences, there is an urgent need for health professionals, policy makers, and the public to recognize the magnitude of the diabetes epidemic and the potential devastation it may inflict throughout the world, particularly in LMICs.

The determinants of diabetes, in particular type 2 diabetes (T2D), consist of a matrix of genetic, epigenetic, and lifestyle factors, which interact with one another and operate within the larger physical/sociocultural environment. Over the past few decades, in parallel with rapid economic development, populations worldwide have been consuming more Westernized diets with large amounts of highly processed, relatively inexpensive foods such as sugar-sweetened beverages (SSBs), refined carbohydrates, and fast foods, and moving away from their traditional active lifestyle. Although genetic factors also play a role, they are not sufficient to explain the escalating diabetes epidemic that has occurred in recent decades. However, the effects of susceptibility genes are amplified in the presence of unhealthy lifestyle factors (e.g., higher consumption of SSBs), supporting an important role of gene-environment interactions in the development of obesity and T2D.⁴

While the etiology of T2D is multifactorial, prevention efforts that focus on modifiable lifestyle determinants of diabetes have the greatest promise. In particular, efforts that focus on diet and physical activity have the potential to reduce the risk of obesity, the single most important risk factor for diabetes.³ Traditionally, obesity prevention has focused on encouraging individual behavior change, while giving little attention to the broader environmental forces that influence human behavior. Although individual responsibility remains important, recognition of the importance of societal, environmental, and public policy factors is growing. We need to channel these insights into concrete actions that transform our currently ‘obesogenic’ and ‘diabetogenic’ environments into more healthful and wholesome living spaces and communities.

Policy initiatives are needed to advance this transformation.^{3,5} The socio-ecological model represents a comprehensive framework for obesity and diabetes prevention,⁶ integrating individual-level factors with environmental and policy factors to produce an interacting network. By introducing macro-level environmental change, policy initiatives have the potential to induce more sustainable improvements in individual health behaviors, and thus impact obesity prevalence and diabetes burden in the entire population. For instance, by governing food and agricultural production and subsidization, policy initiatives can alter the food system of a country, creating a more healthful food environment that is conducive to healthy dietary choices. Similarly, such initiatives could increase physical activity levels in the population by altering behavioral defaults and providing greater resources and incentives for being active. Policy initiatives could be accompanied by more targeted strategies that implement lifestyle and pharmacological interventions in populations at high-risk of developing diabetes.

The table below lists some examples of policy strategies for obesity and diabetes prevention. Many of these policies have been shown to improve food and activity environments and increase healthy behaviors in certain HICs.⁵ Evidence is accumulating more slowly in LMICs, although examples of successful programs can be found to demonstrate the impact that macro-level policies can have on the environment, health behaviors, and health outcomes. For example, Mexico is one of the first countries to implement an excise tax (one peso per liter) on SSBs. Preliminary results from Mexico are promising, showing a 10% reduction in purchase of taxed SSBs, and a concomitant increase in the purchase of untaxed beverages without added sugar, including water.⁷ Policies aimed at changing the built physical activity environment represent another example with positive results in LMICs. In several countries, including Brazil, Colombia, and Fiji, contextually-relevant built environment interventions that were accompanied by national health education and promotion programs showed tremendous success in increasing physical activity at the population level.⁸

Most of these policy strategies lie within the domain of government and other stakeholders with capacity for decision making; hence that is where action must begin. Without a global ‘call to action’, however, diabetes will exact an increasingly devastating toll around the world. Despite convincing evidence that type 2 diabetes is largely preventable through diet and lifestyle modifications, most current agricultural, nutrition, and urban planning policies are not conducive to healthy eating and active living. To align these policies with health

goals, multi-sectorial efforts are needed because prevention is beyond the scope of any one government agency or usual models or the health care system. For example, urban planning and transportation policies can help to make physical environments friendlier to the use of public transportation, walking, and biking. Agricultural and nutrition policies can provide financial incentives for the production and consumption of healthy foods such as vegetables, fruits, whole grains, nuts, and legumes, while tax policies can be used to discourage consumption of unhealthy foods such as SSBs. Labeling of calories, added sugars, saturated fat, and sodium contents for foods sold in containers or packages and in fast food restaurants can help consumers make healthier choices. Effective implementation of these strategies, however, requires full participation of all stakeholders, including the government, food industry, health professionals, urban planners, media, non-governmental organizations, communities, and individuals. To curb the diabetes pandemic, it is critical for international agencies and national governments to take the leadership role in developing and implementing sound policies that make prevention a global and national priority.

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Table

Examples of policies for obesity and diabetes prevention

Food, Nutrition, Agricultural, and Public Policies
Taxing unhealthy foods and subsidizing healthy foods
Instituting policies for nutrition labeling, such as front of package labeling and menu labeling
Regulating marketing of unhealthy foods to children
Requiring healthy nutrition standards in national food assistance programs
Requiring healthy nutrition standards in early child care settings and schools
Regulating competitive foods sold in early childcare settings and schools
Restricting unhealthy foods sold in public spaces, such as hospitals
Making water available free of charge in early childcare settings, schools, and public spaces
Requiring nutrition education in schools, as part of a comprehensive health education curriculum
Incentivizing the building of supermarkets in low-income food deserts
Physical Activity Policies
Instituting physical activity requirements for early child care settings
Requiring, and providing support for, comprehensive physical activity programs in schools
Requiring physical activity education in schools, as part of a comprehensive health education curriculum
Developing and implementing land use, and urban & rural design policies that support an active lifestyle

Examples synthesized from Malik et al, 2013³ and IOM, 2012⁵