

## Food Insecurity: A Public Health Issue

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Recently, I was in Detroit, Michigan, and visited Eastern Market, one of the oldest and largest year-round markets in the United States. It was summer, and the stalls were overflowing with produce from local urban farmers. I had the opportunity to see in action the Double Up Food Bucks (hereinafter, Double Up) program, which is operated by the nonprofit organization Fair Food Network.<sup>1</sup> In Double Up, Michigan Supplemental Nutrition Assistance Program (SNAP) participants get double value for every SNAP dollar they spend to purchase fruits and vegetables at participating farmers' markets and grocery stores. Double Up began at 5 farmers' markets in Detroit in 2009 and has grown to more than 150 sites across Michigan. Today, Double Up is an example of a statewide incentive program that can expand access to and affordability of healthful foods—a particular challenge for low-income consumers experiencing food insecurity.<sup>2-4</sup>

Food insecurity, which the US Department of Agriculture (USDA) defines as “a household-level economic and social condition of limited or uncertain access to adequate food,”<sup>5</sup> is an important national health problem and an underrecognized social determinant of health. It places a substantial burden on our society through health care and social costs. People experiencing food insecurity often consume a nutrient-poor diet, which may contribute to the development of obesity, heart disease, hypertension, diabetes, and other chronic diseases.<sup>6,7</sup> People who live in food-insecure households also have difficulties in managing diet-related chronic conditions.<sup>8</sup> For example, people with type 2 diabetes may find themselves limited to purchasing inexpensive, high-calorie, nutritionally poor foods (eg, foods high in refined carbohydrates) instead of foods that are more healthful, such as vegetables, lean proteins, and whole grains.<sup>7</sup> In addition, low-income families might postpone needed medical care to buy food or might underuse medicine because of budget constraints,<sup>8,9</sup> which can result in expensive and avoidable hospitalizations.<sup>10-12</sup> Others might experience a drop-off in caloric intake when money runs low. The resulting malnutrition can lead to longer hospital stays, reduced responsiveness to treatment, and increased risk of developing infections after surgery.<sup>13-15</sup> Food insecurity represents a “nutrition quality



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gap,” essentially a health inequity that we must address if we hope to reach our nation's targets for achieving healthful diets and reducing chronic disease.<sup>16</sup>

Food insecurity is associated with low incomes. For example, in 2014, 40% of households with annual incomes below 100% of the federal poverty level (FPL) were food insecure, whereas 6% of those with incomes > 185% of the FPL were food insecure and an estimated 14% of American households overall were food insecure.<sup>16,17</sup> Food insecurity is especially prevalent among children, people with disabilities, and the elderly.<sup>16</sup> However, studies show that food insecurity affects households with a range of economic backgrounds and at various points during the life course. For example, some households have episodes

of food insecurity, or even very low food security, despite having annual incomes higher than 100% of the FPL.<sup>17-19</sup>

Food insecurity in households with children is especially concerning because children in food-insecure households have diminished physical and mental health, longer recoveries, higher hospitalization rates, and a greater incidence of developmental and educational delays than their peers in food-secure households.<sup>20</sup> In 2014, 15.3 million children lived in food-insecure households.<sup>16</sup> I applaud the American Academy of Pediatrics for recommending in 2015 that pediatricians screen all children for food insecurity.<sup>21</sup> Through screening, children and their families who are experiencing food insecurity can be connected to local resources, including federal food assistance programs.

The US government spent an estimated \$103.6 billion supporting federal food and nutrition assistance programs in 2014.<sup>18</sup> These programs included SNAP; the Special Supplemental Nutrition Program for Women, Infants, and Children; the National School Lunch Program; the School Breakfast Program; the Summer Food Program; the Child and Adult Care Food Program; and the Food Distribution Program on Indian Reservations, as well as other programs that provide high-quality nutrition at home and in schools. Such programs play a critical role in alleviating food insecurity. For example, SNAP—our largest federal food assistance program—is one of our most effective federal programs. Food insecurity rates in households

participating in SNAP are up to 30% lower than they would be without SNAP benefits, and the program has improved health, education outcomes, and economic self-sufficiency.<sup>18</sup> In 2014, SNAP lifted at least 4.7 million people out of poverty, 2.1 million of whom were children.<sup>18,22</sup> The USDA also provides Food Insecurity Nutrition Incentive (FINI) grants to eligible organizations to design and implement projects to increase the purchase of fruit and vegetables among SNAP participants through point-of-purchase incentives.<sup>23</sup>

Addressing food security is a complex issue that requires us to work across sectors. Communities and groups such as the Fair Food Network are taking leadership roles on this issue in many different ways. The following examples highlight a few:

- ProMedica ([www.promedica.org/pages/home.aspx](http://www.promedica.org/pages/home.aspx)), a nonprofit, locally owned health care system serving Ohio and Michigan, examined its local community health needs assessment data and found the overlapping worlds of hunger, obesity, and chronic disease in the communities it serves. As a result of this work, today all ProMedica patients are screened for food insecurity upon hospital admission and discharged with emergency food supplies and referrals for additional assistance if needed. In 2015, ProMedica also opened its first “prescription food pharmacies,” which provide clients with up to 3 days’ worth of healthy food in addition to nutrition counseling and healthy eating handouts, recipe cards, and connections to other community resources.
- The Food Trust (<http://thefoodtrust.org>), a nonprofit in Philadelphia, Pennsylvania, partnered with the Philadelphia Department of Public Health’s *Get Healthy Philly* initiative to implement Philly Food Bucks. The program provides \$2 bonus incentive coupons that can be redeemed at farmers’ markets for fresh fruit and vegetables. This program demonstrated success in increasing fruit and vegetable consumption and SNAP sales at participating farmers’ markets in low-income communities.<sup>24</sup>
- Networks of food banks, such as those that are part of Feeding America® (<http://www.feedingamerica.org>), may help us address diet-sensitive chronic diseases (eg, diabetes) among the food-insecure population on a large scale. For example, the University of California–San Francisco, in partnership with Feeding America, launched a pilot program to explore the feasibility of using Feeding America’s network of food banks and food pantries to provide diabetes support to low-income, food-insecure people. A postintervention evaluation of the program indicated that this model could result in substantial health benefits: significant improvements were seen in clients’ glycemic control, fruit and vegetable intake, self-efficacy, and medication adherence.<sup>25</sup>

Food is a basic human need, and in food-insecure households, the need for food competes with the need for other

basic human necessities such as medication, housing, utilities, and transportation. As food budgets are stretched, they may become barriers to adopting nutritious diets, which makes following recommendations in the 2015-2020 Dietary Guidelines for Americans<sup>26</sup> a challenge for many people. Food security is a top public health priority for the nation. To promote more food security in American households, we must leverage multisectoral approaches across government, nonprofit, health care, and research to study and scale effective strategies.

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### References

1. Fair Food Network. Double up food bucks. <http://www.doubleupfoodbucks.org>. Accessed July 20, 2016.
2. Grimm KA, Flotz JL, Blanck HM, Scanlon KS. Household income disparities in fruit and vegetable consumption by state and territory: results of the 2009 Behavioral Risk Factor Surveillance System. *J Acad Nutr Diet*. 2012;112:2014-2021.
3. Horning ML, Fulkerson JA. A systematic review on the affordability of a healthful diet for families in the United States. *Public Health Nurs*. 2015;32:68-80.
4. Carlson A, Frazão E. Are healthy foods really more expensive? It depends on how you measure the price. *Economic Information Bulletin No. (EIB-96)*. <http://www.ers.usda.gov/publications/eib-economic-information-bulletin/eib96.aspx>. Published May 2012. Accessed July 20, 2016.
5. US Department of Agriculture, Economic Research Service. Definitions of food security. <http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx>. Accessed May 15, 2016.
6. Heerman WJ, Wallston KA, Osborn CY, et al. Food insecurity is associated with diabetes self-care behaviours and glycaemic control. *Diabet Med*. 2016;33:844-850.
7. Seligman HK, Schillinger D. Hunger and socioeconomic disparities in chronic disease. *N Engl J Med*. 2010;363:6-9.
8. Herman D, Afulani P, Coleman-Jensen A, Harrison GG. Food insecurity and cost-related medication underuse among non-elderly adults in a nationally representative sample. *Am J Public Health*. 2015;105:e48-e59.
9. Berkowitz SA, Seligman HK, Choudhry NK. Treat or eat: food insecurity, cost-related medication underuse, and unmet needs. *Am J Med*. 2014;127:303-310.
10. Wang EA, McGinnis KA, Goulet J, et al; Veterans Aging Cohort Study Project Team. Food insecurity and health: data from the Veterans Aging Cohort Study Project Team. *Public Health Rep*. 2015;130:261-268.
11. Patel MR, Piette JD, Resnicow K, Kowalski-Dobson T, Heisler M. Social determinants of health, cost-related nonadherence, and cost-reducing behaviors among adults with diabetes: findings from the National Health Interview Survey. *Med Care*. 2016;54:796-803.

12. Patel MR, Kruger DJ, Cupal S, Zimmerman MA. Effect of financial stress and positive financial behaviors on cost-related nonadherence to health regimens among adults in a community-based setting. *Prev Chronic Dis*. 2016;13:E46.
13. Kushel MB, Gupta R, Gee L, Haas JS. Housing instability and food insecurity as barriers to health care among low-income Americans. *J Gen Intern Med*. 2006;21:71-77.
14. Seligman HK, Bolger AF, Guzman D, López A, Bibbins-Domingo K. Exhaustion of food budgets at month's end and hospital admissions for hypoglycemia [published erratum appears in *Health Aff (Millwood)*. 2014;33:1304]. *Health Aff (Millwood)*. 2014;33:116-123.
15. Pfunter A, Wier LM, Steiner C. *Costs for Hospital Stays in the United States, 2010*. Statistical brief no. 146. Rockville, MD: Agency for Healthcare Research and Quality; 2013.
16. Coleman-Jensen A, Rabbitt MP, Gregory C, Singh A. *Household Food Security in the United States in 2014*. Washington, DC: US Department of Agriculture, Economic Research Service; 2015.
17. US Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2020 topics and objectives: nutrition and weight status. <https://www.healthypeople.gov/2020/topics-objectives/topic/nutrition-and-weight-status/objectives>. Accessed July 16, 2016.
18. White House, Council of Economic Advisors. Long-term benefits of the Supplemental Nutrition Assistance Program. <https://www.whitehouse.gov/administration/eop/cea>. Published December 2015. Accessed July 20, 2016.
19. Nord M, Brent CP. Food insecurity in higher income households. *E-FAN-02-016*. Washington, DC: US Department of Agriculture, Economic Research Service; 2002. <http://webarchives.cdlib.org/sw1s17tt5t/http://ers.usda.gov/publications/efan02016>. Accessed July 20, 2016.
20. Gundersen C, Gruber J. The dynamic determinants of food insufficiency: Andrews MS, Prell MA, eds. *Second Food Security Measurement and Research Conference, Volume II: Papers*. FANRR-11-2. Washington, DC: US Department of Agriculture, Economic Research Service; 2001:91-109. <http://webarchives.cdlib.org/sw15d8pg7m/http://ers.usda.gov/publications/fanrr11-2>. Accessed July 20, 2016.
21. American Academy of Pediatrics, Council on Community Pediatrics, Committee on Nutrition. Policy statement: promoting food security for all children. *Pediatrics*. 2015;136:e1431-e1438.
22. Short K. *The Supplemental Poverty Measure: 2014. Current Population Reports September 2015*. Washington, DC: US Census Bureau; 2015.
23. US Department of Agriculture. Food Insecurity Nutrition Incentive (FINI) grant program. <https://nifa.usda.gov/program/food-insecurity-nutrition-incentive-fini-grant-program>. Accessed July 20, 2016.
24. Young CR, Aquilante JL, Solomon S, et al. Improving fruit and vegetable consumption among low-income customers at farmers markets: Philly Food Bucks, Philadelphia, Pennsylvania, 2011. *Prev Chronic Dis*. 2013;10:120356.
25. Seligman HK, Lyles C, Marshall MB, et al. A pilot food bank intervention featuring diabetes-appropriate food improved glycemic control among clients in three states. *Health Aff (Millwood)*. 2015;34:1956-1963.
26. US Department of Health and Human Services, Department of Agriculture. 2015-2020 dietary guidelines for Americans. 8th ed. <http://health.gov/dietaryguidelines/2015/guidelines>. Published 2015. Accessed July 20, 2016.