

Produce Prescriptions, Food Pharmacies, and the Potential Effect on Food Choice

Abstract: *When it comes to health and longevity, what we eat may be the most important choice we make on a daily basis. This choice is influenced by a variety of determinants, including cost and accessibility of healthy foods as well as knowledge, attitudes and beliefs about how food impacts health. Produce prescriptions and food pharmacies are innovative care models directed at promoting intake of healthy foods. These programs as well as their potential effect on food choice is described.*

Keywords: food pharmacy; produce prescription; nutrition; chronic disease management

The evidence is convincing: When it comes to health and longevity, what we eat may be the most important choice we make on a daily basis.^{1,2} However, this choice is influenced by a variety of determinants.³ A prime example is the accessibility and cost of healthy foods. In the United States, cost is second only to taste when ranking the most significant factors affecting food choices.⁴ Low-income groups are known to consume fewer fruits and vegetables than their



higher-income counterparts.⁵ Accessibility is also an issue. Food insecurity, or lack of access to nutritionally adequate food, is a widespread problem. In 2018, 11.1% of American households were food insecure at least some time during the year.⁶ Individual attitudes and beliefs about the impact of food on health also plays an important role in choice, especially if the message is consistent and delivered from trusted sources.⁷

As our health care system begins to recognize the importance of nutrition in

and physical barriers to healthy food choices.

Produce Prescriptions

Produce prescription programs use monetary incentives to promote fruit and vegetable consumption among at-risk patients through physician identification and referral. Most programs target patients of low-income, those with diet-related illnesses such as diabetes, obesity or heart disease, or both.⁸ Physicians screen for and identify appropriate

 When it comes to health and longevity, what we eat may be the most important choice we make on a daily basis. 

the prevention, treatment, and reversal of disease, models of care aimed at promoting healthy eating are beginning to emerge. Produce prescriptions and food pharmacies are 2 examples that have been described in the medical literature of late and both have the potential to affect the social, economic,

patients and write them prescriptions for consumption of nutrient-rich foods. These prescriptions can be used to obtain subsidized produce/food items through various community partners (local farmers' markets, grocery stores, community supported agriculture initiatives).

DOI: 10.1177/1559827620915425. From Creighton University School of Pharmacy and Health Professions, Omaha, Nebraska. Address correspondence to: Nicole D. White, PharmD, CDE, NBC-HWC, DipACLM, Creighton University School of Pharmacy and Health Professions, 2500 California Plaza, Omaha, NE 68178; e-mail: nicolewhite@creighton.edu.

For reprints and permissions queries, please visit SAGE's Web site at www.sagepub.com/journals-permissions.

Copyright © 2020 The Author(s)

By definition, a prescription is an instruction or recommendation from a medical practitioner that authorizes a patient to be provided a medicine or treatment.⁹ As defined, a prescription serves (at least) 2 important functions:

1. A prescription provides a recommendation to the patient. A prescription conveys a message to the patient that what is being prescribed plays an important role in the prevention or management of the patient's health.
2. A prescription authorizes a patient to be provided a treatment. In our traditional health care setting, this generally involves a medication being provided to a patient. In the United States, many medications are only available by prescription. Thus without a prescription, the desired medication would not be accessible. A prescription also serves as an initial step in obtaining insurance coverage or financial support for the desired therapy.

Produce prescriptions share many similarities with medication prescriptions. Importantly, a produce prescription conveys a message to the patient that healthy eating plays an essential role in the patient's care. Including this in a written prescription gives the impression that food is just as important as medicine. This is a novel message in our current health care system and has the potential to change a patient's attitudes and beliefs about healthy eating.

Likewise, the emerging model of many produce prescription programs increases the accessibility and affordability of healthy foods. There are a number of ways this is accomplished. Accessibility is improved by providing the foods within the medical clinic or the patient's local pharmacy (more on this below). Affordability is improved through produce subsidies. Depending on the program, these subsidies range from coupons that save \$5 per week on fruits and vegetables to free-of-charge complete meals for both the patient and their family.^{10,11}

Important differences between produce and medication prescriptions exist. Food

is available to everyone without a prescription and is not (traditionally) financially supported as a medical treatment through health insurance. Many produce prescription programs rely on grants, nonprofits, and private-sector supporters to provide subsidized produce for patients. However, the opportunities for federal grant support are growing. The 2018 Farm Bill allocated \$25 million toward produce prescription programs with a commitment to increase funding to \$56 million by 2023.¹² The investment will further evaluate the impact of produce prescriptions on health care quality and cost. Positive findings from these initiatives may provide the impetus to support further expansion through Medicare and Medicaid.

Food Pharmacies

Many produce prescription programs couple with food pharmacies to store and dispense healthy food products. While some of these spaces are actually state-licensed pharmacies, others are located within health care clinics or hospitals but use the term "food pharmacy" as a description of the space's purpose and function.

A pharmacy is a place where medications are prepared and dispensed. As medical practitioners, increasingly recognize the importance of food in human health and well-being, a "food is medicine" movement is growing. And if food is medicine, then a pharmacy is a place where it can be prepared and dispensed.

Food pharmacies are meant to improve access to healthy foods. While providing fresh foods from a pharmacy will not solve the food insecurity problem, many pharmacies are located in food deserts (geographic areas without access to supermarkets or other stores selling a variety of healthy food options) and can contribute to increasing the healthful offerings in these areas.

In addition to its dispensing role, the pharmacy is also a place where a patient can receive education about their medications, their conditions and how medicine treats their condition. Many food pharmacies provide similar

education with an emphasis on the health impact of food. Resources like meal plans, recipes, and cooking classes are used to help patients gain familiarity and skill in preparing the healthy foods the pharmacy dispenses. Many food pharmacies are staffed with an interprofessional care team (which may include a nurse, pharmacist, dietician, and/or health coach) to provide disease management education and behavior change support.

The Geisinger Fresh Food Farmacy is a published example of a program that includes both produce prescriptions and a food pharmacy.^{11,12} The program has demonstrated positive clinical and financial outcomes, including a 2.1% average drop in participant HbA1c levels as well as improvements in cholesterol, weight, and blood pressure in just 18 months. These improvements translated to an 80% reduction in health care costs as analyzed using claims data for those participants who were insured by Geisinger Health Plan.

Conclusions

As the notion of "food is medicine" takes off, produce prescriptions and food pharmacies are 2 initiatives that work to eliminate or reduce some of the social barriers to healthy eating for all. Produce prescriptions have the power to change a patient's attitudes and beliefs about the importance of food in health, as well as reduce or eliminate the barrier of cost as it prohibits healthy food choices. Food pharmacies can increase the accessibility of healthy foods as well as increase patient knowledge about food and health and skill in preparing healthy meals. Several evidence-based models of produce prescriptions and food pharmacies exist and significant federal funding is earmarked for expansion and further evaluation.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethical Approval

Not applicable, because this article does not contain any studies with human or animal subjects.

Informed Consent

Not applicable, because this article does not contain any studies with human or animal subjects.

Trial Registration

Not applicable, because this article does not contain any clinical trials. **AJLM**

References

1. Micha R, Penalvo JL, Cudhea F, Imamura F, Rehm CD, Mozaffarian D. Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the United States. *JAMA*. 2017;317:912-924.
2. Murray CJ, Atkinson C, Bhalla K, et al; US Burden of Disease Collaborators. The state of US health, 1990-2010: burden of diseases, injuries, and risk factors. *JAMA*. 2013;310:591-608.
3. Shepherd R. Social determinants of food choice. *Proc Nutr Soc*. 1999;58:807-812.
4. Glanz K, Kristal AR, Tilley BC, Hirst K. Psychosocial correlates of healthful diets among male auto workers. *Cancer Epidemiol Biomarkers Prev*. 1998;7:119-126.
5. De Irala-Estevez J, Groth M, Johansson L, Oltersdorf U, Prättälä R, Martínez-González MA. A systematic review of socioeconomic differences in food habits in Europe: consumption of fruit and vegetables. *Eur J Clin Nutr*. 2000;54:706-714.
6. United States Department of Agriculture, Economic Research Service. Food security and nutrition assistance. <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/>. Accessed March 2, 2020.
7. De Almeida MDV, Graça P, Lappalainen R, et al. Sources used and trusted by nationally-representative adults in the European Union for information on healthy eating. *Eur J Clin Nutr*. 1997;51(suppl 2):S16-S22.
8. Swartz H. Produce Rx programs for diet-based chronic disease prevention. *AMA J Ethics*. 2018;20:E960-E973.
9. Oxford Dictionary. Prescription. <https://www.lexico.com/en/definition/prescription>. Accessed March 2, 2020.
10. Friedman DB, Freedman DA, Choi SK, et al. Provider communication and role modeling related to patients' perceptions and use of a federally qualified health center-based farmers' market. *Health Promot Pract*. 2014;15:288-297.
11. Feinberg AT, Hess A, Passaretti M, Coolbaugh S, Lee TH. Prescribing food as a specialty drug. *NEJM Catalyst*. 2018;4(2). <https://catalyst.nejm.org/doi/full/10.1056/CAT.18.0212>. Accessed March 12, 2020.
12. Gersing L. Will "Produce Prescriptions" show healthy returns? *MedPage Today*. <https://www.medpagetoday.com/primarycare/dietnutrition/82368>. Published September 25, 2019. Accessed March 2, 2020.