Preventive Medicine Reports 10 (2018) 62–65

Contents lists available at ScienceDirect

Preventive Medicine Reports

journal homepage: www.elsevier.com/locate/pmedr

Discussion

When food isn't medicine - A challenge for physicians and health systems

Sean C. Lucan

Department of Family and Social Medicine, Albert Einstein College of Medicine|Montefiore Health System, 1300 Morris Park Ave, Block Building, Room 410, Bronx, NY 10461-1900, United States

ARTICLE INFO

Keywords:
Food
Nutrition
Public health
Medicine
Community health
Physicians
Hospitals
Health systems
Accountable care organizations

ABSTRACT

Food can be powerful medicine. Good nutrition helps promote health and prevent and treat disease. Yet nutrition is not often part of a physician's training or clinical practice. Food might not be medicine when it's importance is under-recognized and healthful eating is under-prescribed. Moreover, food cannot be medicine when it is not available to patients (or when available only in the form of unhealthful fare). This paper considers evolving thinking about when food isn't medicine by chronicling the experience of one physician—from college coursework to providing patient care and conducting research. The paper is framed around the experience of a representative patient struggling with diet-related chronic conditions, and describes some community-focused initiatives to help address issues related to food access in challenged communities. A principal focus is the over-abundance of foods from 'plants' (the industrial processing kind) and the low availability of food from 'plants' (the living botanical kind). Physicians and health systems can support access to healthier food and healthier eating, and the idea of food as medicine, through a variety of approaches that extend beyond hospital and clinic walls. Examples of such physician and health-system approaches are provided.

"Where am I gonna find whole-wheat bread around here?"

1. Introduction

T.C. is a patient of mine. Like most of my patients, T.C. suffers from obesity. She has diabetes and hypertension and her lipid profile can only be described as high-risk. She wants to eat better, but can't. That is, she might choose to eat better if the choice was hers to make. But it isn't, or hasn't been—not really; not in any practical sense.

When I first meet T.C., during a 'well' visit at the Federally Qualified Health Center where I see patients in the Bronx, NY, I ask her about her diet. After hearing the unhealthful particulars, I inquire as to where she gets her food. She describes a circumstance where most options available to her are a far cry from health-promoting. Her neighborhood—the neighborhood where many of my other patients live and face the same constraints—is a virtual buffet of predominantly unhealthful fare.

So I treat with medication what might be better addressed with better food … again (as I have done too many times in the past). And I reflect ….

I think about the steps along my journey to becoming T.C.'s doctor and my evolving perspective on food as medicine. And I think about how doctors like me, and the health systems for which we work, can better help T.C. and all the other patients like her.

2. Nutrition (and its absence) in medicine

I first came to appreciate the role of nutrition in health through an elective course in college. During the course, I learned that we really are what we eat in the most literal sense. Our food becomes our flesh and bone, our bodies and brains, our fluids, neurotransmitters, and all the rest.

Food is a significant human exposure. Those of us fortunate enough to have food tend to eat every day, on multiple occasions, and through myriad mechanisms and biological pathways, the foods we consume (or fail to consume) impact general health and wellness, the prevention (or promotion) of chronic illness, and the management of virtually all diseases (Katz et al., 2015).

Food can definitely be medicine. Too frequently though, the power of healthful eating is under-recognized or under-applied. Guidance related to food is not often part of a physician's armamentarium.

The problem begins with lack of training. When I was in medical school, nutrition was not part of the standard curriculum. Today, more than 15 years later, it mostly still isn't (Adams et al., 2015). Certainly there are some schools that offer more than a few hours of nutrition education (Adams et al., 2015), sometimes even through innovative hands-on *electives* as at the institution where I now teach (Albert Einstein College of Medicine, 2016). But the sparse-to-nonexistent nature of nutrition education for many, if not most, physicians in training is frankly astounding. After all, dietary intake ranks near the

E-mail address: selucan@montefiore.org.

https://doi.org/10.1016/j.pmedr.2018.02.007
Received 25 September 2017; Received in revised form 13 January 2018; Accepted 11 February 2018
Available online 16 February 2018

top of factors that affect human health, and patients—often confused by seeming controversies in both traditional and social media—want guidance.

"Brown bread is healthy, right?"

Doctors can provide basic guiding counsel, and need not operate as dieticians to do so.

3. A junior doctor makes do

When I started seeing my own patients, patients like T.C., I knew that counseling on healthful eating would be part of my own clinical practice. My undergraduate readings, and (by the time of residency) my subsequent MPH courses, an *optional* lecture series during med school, and some additional research I had done in prevention, all led me to a guiding principle for dietary advice:

Choose foods from plants (the living botanical kind) *not plants* (the industrial processing kind).

The idea was not that everyone should be vegan, or that only strictly whole foods would do. But the idea was that consuming minimally processed, predominantly plant-based diets—composed chiefly of foods as close to what occurs in nature as possible—benefits the health of patients, communities, and the planet. Conversely, choosing foods from factories (i.e., ultra-processed, highly refined, mostly artificial concoctions) or from factory farms (inhumanely and unsustainably produced animal products) can be a detriment to all.

The concept of 'plants not plants' has been a staple of my clinical counseling since residency. Patients seem to get it. T.C. certainly does. But despite her understanding, and her motivation to eat better, T.C. has had structural barriers to more-healthful eating. A big barrier, perhaps the biggest, relates to food access and the types of foods available in her community.

4. Window into a world

During residency, I had many patients like T.C. To understand their situation better, I explored the neighborhood around my residency clinic where many of my patients lived. I was struck by the ubiquity of fast foods and highly refined, pre-packaged, convenience items (foods from plants, the industrial processing kind). Equally striking was a near absence of items like whole grains and fresh produce (foods from plants, the living botanical kind).

A photograph I snapped during one store visit—a sad wooden bin containing blemished potatoes and discolored onions—is one I still use in presentations to this day: "This is a produce aisle, of a 'supermarket,' in an urban, low-income, minority neighborhood." Other photos show shelf after shelf of candy, chips, cookies, cakes, rainbow-colored cereals, and sugary drinks.

The photos look not very different from stores in the neighborhood where I practice now—the community T.C. calls home. The choices patients like T.C. can make are, of course, constrained by the choices they have.

To better appreciate such choices, during fellowship I began conducting research examining food sources in neighborhoods. I continue that work to this day and what I have found can be boiled down to this: there is a lot of junk out there, disproportionately foisted on those who need it the least and often overwhelming healthful options (when there are any).

"I only see white bread in the stores near me."

5. Unhealthful provision and promotion

Lower-income minority neighborhoods, like T.C.'s, have more fast food and more take-away outlets than wealthy white communities, and their 'supermarkets' often look more like junk-food distributors than grocery stores (Lucan et al., 2016). Disadvantaged neighborhoods also present a range of less-intuitive storefront food sources with which residents need to contend (e.g., dollar stores, laundromats, auto shops, beauty salons, etc.) (Farley et al., 2010, author and colleagues, under review). There is simply more food available in more places, and more of it is just plain unhealthful (think candy at the register, vending machines offering sodas, chips in the checkout aisle, etc.) (Lucan et al., 2016; Wright et al., 2015; Basch et al., 2016).

Street vendors may only add to the problem in many neighborhoods. Less-healthful street vending (e.g., offering processed meats, sugary treats, and salty snacks) locates disproportionately in areas home to those with lower educational attainment, lower incomes, and non-white skin (Lucan et al., 2014).

And farmers' markets may not help the situation. For instance, urban farmers' markets often 'tailor' items to neighborhoods and offer and promote many items that are less-than-ideal for good nutrition and health (e.g., pies, pastries, donuts, juice drinks, and jams), particularly in communities of color (Lucan et al., 2015).

Promotion of unhealthful items is also a problem within and outside other food sources (Ohri-Vachaspati et al., 2014) and more broadly in patient communities (Lesser et al., 2013). Advertisements for high calorie, low-nutrient foods appear more often in African American and Latino neighborhoods (Yancey et al., 2009), with subway-station ads in particular targeted to neighborhoods with higher poverty, lower high-school graduation rates, higher percentages of Hispanics (Lucan et al., 2017).

Food can't be medicine when it is unhealthful. And healthful food can't be medicine when it's unavailable.

6. How you like them apples?

They say "an apple a day keeps the doctor away." There may be truth in this adage. Certainly getting more healthful foods like fresh produce into under-served communities like T.C.'s would be of benefit.

At the clinic where I now see patients we have tried a fruit-and-vegetable-Rx program, an approach that has been used elsewhere across the country and that is gaining traction (Buyuktuncer et al., 2014; Wholesome Wave, 2017). The idea is that doctors write prescriptions for produce like they would for pills. These prescriptions serve not only as written advice for patients to consume more fruits and vegetables, but also as coupons to help subsidize produce purchases. We developed our program in collaboration with local stores, with the intention of increasing both produce supply and demand in the neighborhood.

Other approaches that have been tried across the country to improve healthful-food access include siting produce-focused farmers' markets at medical centers (George et al., 2013; Freedman et al., 2013; George et al., 2011) and offering vouchers or coupons for patients (Young et al., 2013; Baronberg et al., 2013; An, 2013). We have done both at the clinic for which I now work, with some patients becoming routine customers.

As an additional way to help food become medicine, my department is experimenting with 'group visits'. Through separate patient groups, organized around health conditions like obesity, hypertension, and diabetes, patients explore a variety of topics tailored to group needs—e.g., how to better navigate local food environments, how to eat better given existing food choices, and how to collectively or individually advocate for improved retail options. In addition to getting healthier through these groups, patients report feeling empowered to make changes–in their lives and in their communities.

"I went to [local store], asked to speak to the manager, and asked him to carry whole-wheat bread." T.C. says.

7. Innovation outside of the box

Innovating outside of the confines of hospital and clinic walls, my health system has identified bodegas (small grocery stores) in neighborhoods with high rates of obesity, and worked with store owners to support their offering and promoting healthier foods (Parsons et al., 2017). There has also been work with a food distributor to ensure healthier-food access for bodega owners, and coalition building with other organizations advocating for healthier neighborhood foods (Parsons et al., 2017).

Additionally, health-system staff members have run nutritional workshops, educational sessions, and tastings for community groups, schools, and churches to increase local demand and keep healthful bodega offerings viable. Staff have conducted "bodega walks" (highlighting where healthful food can be found within neighborhoods), and label-reading activities (explaining what foods are most healthful within stores) (Parsons et al., 2017). There have also been efforts directed towards community gardens (Albert Einstein College of Medicine, 2017), and restricting unhealthy advertising in patient neighborhoods (Lucan, 2017). These efforts complement other food-related initiatives undertaken by other health systems nationally: e.g., hospital-based food pantries (Gany et al., 2015; Kaiser Health News, 2011; Gearon, 2015), community supported agriculture (CSA) programs (East Boston Neighborhood Health Center, 2017; Mitchell, 2009), collaborations for home meal delivery (Cho et al., 2015; Buys et al., 2017), and guided grocery store tours with gift cards for healthful foods (Henry Ford Health System, 2017; Riverwood Healthcare Center, 2016).

A focus on food and on issues of neighborhood access may make sense for health systems, given their social accountability and financial incentives to focus on community needs. For instance, programs like Delivery System Reform Incentive Payment (DSRIP) through Medicaid (The Henry J. Kaiser Family Foundation, 2014) incentivize improvements in population health and might offer particular opportunities to innovate in needy communities like T.C.'s around diet-related health outcomes.

8. Moving forward

T.C. has gotten off some of her medications. Her medical conditions are under better control and she is feeling healthier. She likes the healthful changes to her neighborhood, some of which she has helped and is helping produce. A challenge for healthcare providers and health systems more generally will be to support the same kind of changes in more neighborhoods for more patients.

Certainly doctors can help. While nutrition training for physicians is currently lacking, emerging electives for medical students (Albert Einstein College of Medicine, 2016; Tulane University School of Medicine Teaching Kitchen, 2017), and continuing education programs for physicians in practice (Harvard T.H. Chan School of Public Health Department of Nutrition, 2017) provide options for gaining food-related skills and insight. Being versed in general principles of healthful eating would be useful for basic counseling. Referral to dieticians or health educators may be appropriate in some cases for more extensive counseling, but clinicians need not be confined to the activities of hospital-based or clinic-based patient care to have an impact.

Physicians, physician practices, and accountable care organizations can support healthier eating by addressing issues related to food access in patient communities—through approaches noted above and/or others. Some medical practices already screen for social determinants related to food security and food access, and there is momentum to make such screening more routine (IOM (Institute of Medicine), 2014; Council On Community P, 2016).

If an ounce of prevention is worth a pound of cure, devoting resources to programs that support healthful eating might benefit not only patients but also the providers and provider systems that serve them. Given the tremendous and expensive burdens of diet-related chronic diseases, there could even be work-and-cost savings realized by addressing fundamental causes and contributors. Up-front financial investments might be hard pills to swallow, but healthy returns could make initial program costs go down easier. Focusing on food may be the more healthful course for all.

As T.C. says, "I'd rather swallow some good food than a bunch of pills."

I think we all would.

Financial support

The author and some of the referenced research are supported by the Eunice Kennedy Shriver National Institute of Child Health & Human Development of the National Institutes of Health under Award Number K23HD079606. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health.

Conflict of interest

None; the author has no relationships to report.

Authorship

SL conceived and wrote this manuscript.

Acknowledgments

The author would like to thank Amanda Parsons, A. Hal Strelnick, Danielle Bocchino, and Arielle Sklar for their review of early versions of this manuscript and Juan Robles and Joel Bumol for their helpful suggestions.

References

Adams, K.M., Butsch, W.S., Kohlmeier, M., 2015. The state of nutrition education at US medical schools. Journal of Biomedical Education. 2015, 1–7.

Albert Einstein College of Medicine, May 10, 2016. Einstein's CHEFF Course: Exploring the Power of Food as Good Medicine. http://www.einstein.yu.edu/features/stories/1177/einsteins-cheff-course–exploring-the-power-of-food-as-good-medicine/, Accessed date: 28 December 2017.

Albert Einstein College of Medicine, 2017. Open House Introduces the BODY Community Garden. http://www.einstein.yu.edu/features/around-campus-prior.asp?id=125, Accessed date: 28 December 2017.

An, R., Jul 2013. Effectiveness of subsidies in promoting healthy food purchases and consumption: a review of field experiments. Public Health Nutr. 16 (7), 1215–1228. 23122423.

Baronberg, S., Dunn, L., Nonas, C., Dannefer, R., Sacks, R., 2013. The impact of New York City's Health Bucks Program on electronic benefit transfer spending at farmers markets, 2006–2009. Prev. Chronic Dis. 10, E163 (PMCID: 3786628).

Basch, C.H., Kernan, W.D., Menafro, A., Oct 2016. Presence of candy and snack food at checkout in chain stores: results of a pilot study. J. Community Health. 41 (5), 1090–1093. 27101366.

Buys, D.R., Campbell, A.D., Godfryd, A., et al., Apr 2017. Meals enhancing nutrition after discharge: findings from a pilot randomized controlled trial. Journal of the Academy of Nutrition and Dietetics. 117 (4), 599–608 (PMCID: PMC5368006).

Buyuktuncer, Z., Kearney, M., Ryan, C.L., Thurston, M., Ellahi, B., Apr 2014. Fruit and vegetables on prescription: a brief intervention in primary care. J Hum Nutr Diet. 27 (Suppl. 2), 186–193. 23651065.

Cho, J., Thorud, J.L., Marishak-Simon, S., Frawley, L., Stevens, A.B., 2015. A model home-delivered meals program to support transitions from hospital to home. J Nutr Gerontol Geriatr. 34 (2), 207–217. 26106988.

Council On Community P, Apr 2016. Poverty and child health in the United States. Pediatrics. 137 (4). 26962238.

East Boston Neighborhood Health Center, 2017. Community Supported Agriculture (CSA). https://www.ebnhc.org/en/food-access/community-supported-agriculture-(csa).html, Accessed date: 28 December 2017.

Farley, T.A., Baker, E.T., Futrell, L., Rice, J.C., Feb 2010. The ubiquity of energy-dense snack foods: a national multicity study. Am. J. Public Health. 100 (2), 306–311 (PMCID: PMC2804650).

Freedman, D.A., Choi, S.K., Hurley, T., Anadu, E., Hebert, J.R., May 2013. A farmers' market at a federally qualified health center improves fruit and vegetable intake

among low-income diabetics. Prev. Med. 56 (5), 288–292 (PMCID: 3633661).
Gany, F., Lee, T., Loeb, R., et al., Dec 2015. Use of hospital-Based food pantries among low-income urban cancer patients. J. Community Health. 40 (6), 1193–1200 (PMCID: PMC4628580).
Gearon, C.J., December 8, 2015. Some Hospitals Prescribe Food, Take Other Steps to Fight Food Insecurity. U.S. News and World Report.
George, D.R., Kraschnewski, J.L., Rovniak, L.S., Dec 2011. Public health potential of farmers' markets on medical center campuses: a case study from penn state milton s. Hershey medical center. Am. J. Public Health. 101 (12), 2226–2232. 22021298.
George, D.R., Rovniak, L.S., Kraschnewski, J.L., Morrison, K.J., Dillon, J.F., Bates, B.Y., 2013. Medical center farmers markets: a strategic partner in the patient-centered medical home. Prev. Chronic Dis. 10, E127 (PMCID: PMC3733477).
Harvard T.H. Chan School of Public Health Department of Nutrition, 2017. Healthy Kitchens, Healthy Lives: Caring For Our Patients and Ourselves. http://www.healthykitchens.org/overview/introduction/, Accessed date: 28 December 2017.
Henry Ford Health System, 2017. LiveWell Grocery Store Tour. https://www.henryford.com/calendar/grocery-store-tour/livewell-grocery-store-tour, Accessed date: 28 December 2017.
IOM (Institute of Medicine), 2014. Capturing social and Behavioral Domains in Electronic Health Records: Phase 1. Washington, DC.
Kaiser Health News, November 22, 2011. Where 'Hospital Food' Takes On A New Meaning. https://khn.org/news/hospital-pantry/, Accessed date: 28 December 2017.
Katz, D.L., Friedman, R.S.C., Lucan, S.C., 2015. Nutrition in Clinical Practice: A Comprehensive, Evidence-based Manual for the Practitioner, Third edition. Wolters Kluwer, Philadelphia.
Lesser, L.I., Zimmerman, F.J., Cohen, D.A., 2013. Outdoor advertising, obesity, and soda consumption: a cross-sectional study. BMC Public Health. 13, 20 (PMCID: 3556162).
Lucan, S.C., October 23, 2017. NYC Transit System Needs to End Alcohol Ads on Subways and Buses. NY Daily News.
Lucan, S.C., Maroko, A.R., Bumol, J., Varona, M., Torrens, L., Schechter, C.B., May 2014. Mobile food vendors in urban neighborhoods-implications for diet and diet-related health by weather and season. Health & Place. 27, 171–175 (PMCID: PMC4017652).
Lucan, S.C., Maroko, A.R., Sanon, O., Frias, R., Schechter, C.B., Jul 2015. Urban farmers' markets: accessibility, offerings, and produce variety, quality, and price compared to nearby stores. Appetite. 90, 23–30 (PMCID: PMC4410073).
Lucan, S.C., Patel, A., Gjonbalaj, I., 2016. Maroko AR. 3032: Unhealthy food provision and disparities in broadly considered urban food environments. In: APHA 2016 Annual Meeting & Expo. https://apha.confex.com/apha/144am/meetingapp.cgi/Paper/351991.
Lucan, S.C., Maroko, A.R., Sanon, O.C., Schechter, C.B., Apr 2017. Unhealthful food-and-beverage advertising in subway stations: targeted marketing, vulnerable groups, dietary intake, and poor health. J. Urban Health. 94 (2), 220–232 (PMCID: PMC5391329).
Mitchell, L., 2009. Maryland Hospitals for a Healthy Environment: Local Foods to Local Hospitals (Final Report) University of Maryland School of Nursing, January 1–August 31. https://www.ams.usda.gov/sites/default/files/media/MD0671.pdf.
Ohri-Vachaspati, P., Isgor, Z., Rimkus, L., Powell, L.M., Barker, D.C., Chaloupka, F.J., 2014. Child-directed marketing inside and on the exterior of fast food restaurants. Am. J. Prev. Med. Oct 29. 25441231.
Parsons, A., Spurrell-Huss, E., Lucan, S.C., Nov 2017. How health systems can promote healthier eating. Ann. Fam. Med. 15 (6), 583 (PMCID: PMC5683874).
Riverwood Healthcare Center, April 20, 2016. Grocery Tours for Those with Diabetes. http://riverwoodhealthcare.org/grocery-tours-for-those-with-diabetes/, Accessed date: 28 December 2017.
The Henry J. Kaiser Family Foundation, 2014. An Overview of Delivery System Reform Incentive Payment (DSRIP) Waivers. http://kff.org/medicaid/issue-brief/an-overview-of-delivery-system-reform-incentive-payment-waivers/, Accessed date: 22 May 2017.
Tulane University School of Medicine Teaching Kitchen, 2017. The Goldring Center for Culinary Medicine. http://culinarymedicine.org, Accessed date: 28 December 2017.
Wholesome Wave, 2017. How We Work - Produce Prescriptions. https://www.wholesomewave.org/how-we-work/produce-prescriptions, Accessed date: 28 December 2017.
Wright, J., Kamp, E., White, M., Adams, J., Sowden, S., Oct 2015. Food at checkouts in non-food stores: a cross-sectional study of a large indoor shopping mall. Public Health Nutr. 18 (15), 2786–2793. 25712753.
Yancey, A.K., Cole, B.L., Brown, R., et al., Mar 2009. A cross-sectional prevalence study of ethnically targeted and general audience outdoor obesity-related advertising. Milbank Q. 87 (1), 155–184 (PMCID: PMC2879171).
Young, C.R., Aquilante, J.L., Solomon, S., et al., 2013. Improving fruit and vegetable consumption among low-income customers at farmers markets: Philly Food Bucks, Philadelphia, Pennsylvania, 2011. Prev. Chronic Dis. 10, E166 (PMCID: 3804016).