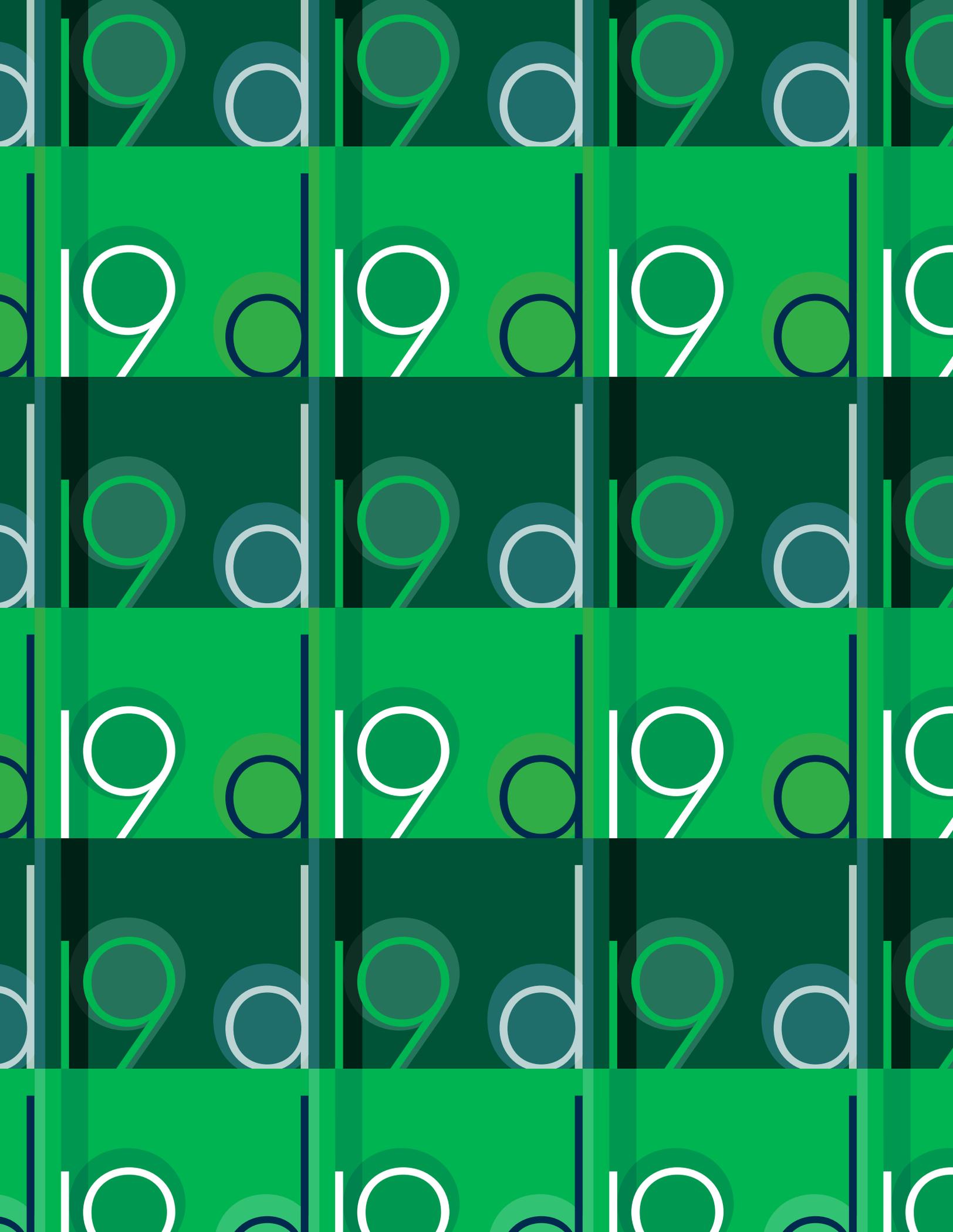




EXECUTIVE INNOVATION LAB IN
DIABETES AND PREDIABETES

FOOD AS MEDICINE:
INTRODUCTORY LEARNINGS





Food as Medicine: Background and Primer

Overweight and obesity are significantly associated with type 2 diabetes,⁶⁶ along with a host of other conditions. By encouraging loss of excess weight, we can tackle one of the most addressable contributors to diabetes and poor health more broadly.

Poor diet quality plays a major role in overweight and obesity, in addition to being linked to cardiovascular disease and certain cancers. Research suggests it's the number one risk factor for death in America, above smoking and high blood pressure.⁶⁷ By thinking of food as medicine, we can begin to tackle obesity and diabetes alongside other diet-related conditions.

What Are Some of the Barriers to Healthy Eating?

“Like a yoyo, I lose weight, I gain weight. I eat healthy, and then I go and mess up... The problem is consistency.”⁶⁸

Energy-dense foods like refined grains, added sugars, and fats tend to be cheaper than nutrient-dense foods.⁶⁹ The cheapest shopping plan meeting USDA nutrition guidelines costs \$649.90 per month for a family of four,⁷⁰ which equates to over 30% of the post-tax income of a family just above the poverty line and ineligible for the Supplemental Nutrition Assistance Program (SNAP). Though individuals on SNAP receive financial support to purchase food, they are still three times more likely to die from diabetes complications than non-participants.⁷¹

The presence of food deserts means that people in certain geographic areas do not have physical access to nutritious foods. Food swamps that overwhelm healthy choices with unhealthy ones tend to be associated with even higher obesity rates.

Healthcare providers are not typically given the nutrition education tools to help their patients. Over a third of surveyed medical schools provided less than 12 hours of nutrition education in 2014; the recommended minimum is 25 hours. Fewer than half of medical schools report teaching any nutrition in a clinical setting.⁷²

Further, there are numerous unanswered and evolving questions in our understanding of what constitutes “healthy” food. Nutrition research is often misrepresented or oversimplified in the media, leading to distrust of the establishment.

What Efforts Are Underway to Improve Nutrition?

A number of community programs are expanding access to fruits and vegetables and offering nutrition education. Brighter Bites provides donated fruits, vegetables, and recipes to families at local schools where 80% or more of the students receive free or reduced lunch. Cooking Matters offers free cooking and nutrition classes to families in underserved communities. Food pharmacies at Geisinger and Zuckerberg San Francisco General enable healthcare providers to write prescriptions for fruits and vegetables for low-income patients.

There are national efforts to reduce consumption of sugar-sweetened beverages, which contribute the largest amount of sugar to the American diet and account for 6.5% of daily calories.⁷³ Eight localities across the US have instituted soda taxes, and the UCSF medical system has ended the sale of sugary beverages on its campuses, in addition to adding clear nutrition labelling to foods prepared on-site and a Smart Choice designation on healthy foods.

Digital health programs like Omada, Virta, and Noom provide coaching and personalized support for making dietary changes, often leading to greater weight loss than traditional programs.

For further exploration, here are some resources we've found helpful:

- Food Prescription Programs: *Food as medicine: Doctors are prescribing broccoli and bananas alongside beta blockers*⁷⁶
- Nutrition Science and Research: *Global Dietary Database*⁷⁷
- Food Policy: *Food-PRICE*,⁷⁸ *Healthy Food America*,⁷⁹ and *Duke World Food Policy Center*⁸⁰

How Might Food as Medicine Interventions Save Lives and Dollars?

The costs of diet-related disease are immense, but fortunately, strategic policies and novel research have the potential to dramatically improve health outcomes and garner tremendous savings.

Worksite Wellness—investing in health is a smart business decision

Reducing employee health risks such as high glucose and blood pressure by **just 1 percent** could save employers **\$83 to \$103 per person annually**.



Every dollar that employees spend on wellness programs generates about **\$3.27** in lower medical costs and **\$2.73** in less absenteeism.



Strengthening the 'N' in SNAP



Making nutrition a core SNAP objective would improve the lives of millions of low income families, while lowering health care costs and reducing disparities.

30% fruit and vegetable (F&V) incentive to all SNAP participants is estimated to save...

\$6.77 Billion in healthcare costs over a lifetime!

\$39.16 Billion: amount of healthcare savings over a lifetime that would be produced by a combined incentive/disincentive program within SNAP

Nutrition research is advancing quickly, but there's still so much left to learn. Areas of research that warrant funding include:



The cardiometabolic effects of phenolics, dairy fat, probiotics, fermentation, coffee, tea, cocoa, eggs, specific vegetable and tropical oils, vitamin D, individual fatty acids, diet-microbiome interactions.

Healthcare—the number one cause of poor health should be the number one priority of the healthcare system

Providing a **20 percent incentive** for fruit and vegetable purchases to Medicaid and Medicare beneficiaries is estimated to prevent **1.95 million** cardiovascular disease events and to save **\$40.9 billion** in healthcare costs.



Providing free fresh food as a treatment for diabetes yields a **more than 40%** decrease in the risk of death or serious complications.



A broader **20 percent incentive** including whole grains, nuts, fish, and plant-based oils would prevent **3.31 million** cardiovascular disease events save **\$102.4 billion** in healthcare costs.



This infographic is adapted from The Friedman School at Tufts University. Visit <https://nutrition.tufts.edu/sites/default/files/documents/FIM%20Infographic-Web.pdf> to see source material.



Food as Medicine: Introductory Learnings

The role of food as sustenance or nutrition for the body is generally understood. However, the role of food in determining chronic health outcomes, both positive and negative, is typically a less familiar concept. Poor diet quality plays a huge role in overweight and obesity, in addition to being linked to cardiovascular disease and certain cancers. In fact, research suggests it's the number one risk factor for death in America, above smoking and high blood pressure. By thinking of food as medicine, we can begin to tackle obesity and diabetes alongside other diet-related conditions.

In an ideal world, nutrient-dense foods would be affordable and easily accessible to everyone. However, with the reality of food deserts, lack of nutrition education, and inadequate food policy, high-calorie, low-nutrient foods tend to be cheaper and more readily available than fruits and vegetables. This inundation of refined grains, added sugars, and fats in our diet frequently undermines efforts to reduce the incidence and burden of obesity, prediabetes, and type 2 diabetes. The cheapest shopping plan meeting USDA nutrition guidelines cost \$649.90 per month for a family of four, which equates to over 30% of the post-tax income of a family just above the poverty line and ineligible for the Supplemental Nutrition Assistance Program (SNAP). Moreover, even when individuals are on SNAP and receive financial support to purchase food, they are still three times more likely to die from diabetes complications than non-participants.

Fortunately, a number of community programs, regional efforts, and national campaigns are trying to change this. The Food as Medicine Movement is about more than food and clinical outcomes—it touches everything from climate change and sustainability to food injustice, power dynamics, and inequality. Food prescription programs, nutrition education initiatives, and soda tax proponents are fighting for ways to

get nutritious, wholesome foods into the hands of millions of American families. Our high level guide below details some of the amazing programs that are working towards pushing the needle on chronic disease through food.

To jump to a particular topic:

[Food Deserts](#)

[Food Policy: Soda Taxes and Sugar-Sweetened Beverage Taxes](#)

[Food Prescription Programs](#)

[Medically-Tailored Meals](#)

[Nutrition Education for Healthcare Providers](#)

[Supplemental Nutrition Assistance Program \(SNAP\)](#)

[Additional Nutritional Initiatives](#)

[d19 Lightning Round Talks](#)



Food Deserts

Background

American Nutrition Association

The USDA definition of food deserts: parts of the country void of fresh fruit, vegetables, and other healthful whole foods, usually found in impoverished areas and largely due to a lack of grocery stores, farmers' markets, and healthy food providers. 23.5 million Americans live in food deserts.

Food Deserts in American Infographics

Tulane University's infographics and statistics on the effects of food deserts, the difficulties for people living in food deserts, and how the situation can be improved.

Programs and Initiatives

Corbin Hill Farm Share

A Harlem-based nonprofit that delivers fresh, locally-grown fruits and vegetables to urban

communities through a year-round, weekly subscription program. The program also accepts food stamps.

MoGro

A nonprofit mobile grocery project in northern New Mexico, including Santa Fe, Albuquerque, and rural and tribal communities. They offer weekly, locally-sourced produce shares for \$5 for families on SNAP, or \$10-25 depending on the household's income and resources.

HealthyRetailSF

A San Francisco-based pilot program that helps shops and corner stores in "food deserts" make the switch to selling fruits and vegetables by giving small-business owners \$15,000 to \$20,000 for new displays, refrigeration and computerized sales systems, and marketing campaigns.

Food Policy: Soda Taxes and Sugar-Sweetened Beverage Taxes

Background

Taxing Sugary Beverages Makes Sense for Our Health

A three-minute video by Duke's World Food Policy Center, detailing what soda taxes are and what pressures lie against their implementation. Sugar-sweetened beverages increase a person's risk for obesity, diabetes, and heart disease.

Soda Taxes Podcasts

Nutrition and policy expert Kelly Brownell speaks with other experts in public health, policy, and economics about soda taxes. Topics include successful case studies, the makings a soda tax, and industry tactics to thwart soda taxes.

The Soft Drink Wars with Big Soda

Learn about the fight for soda taxes in Philadelphia and how preemption laws,

which limit cities from imposing taxes of their own, represent a lofty obstacle for soda tax proponents. *By Jeremy B. White, 8/13/19*

Programs and Initiatives

Soda Tax Update: Where Does the Money Go?

Learn more about sugar-sweetened beverage taxes and where the revenues from them go, including nutrition education and cooking programs, free community fitness classes, quality pre-K programs, and more.

By Sabrina Lin and Emily Fitts

Healthy Food America

An organization that works to identify the most promising strategies to combat obesity and diabetes, supports policymakers, and advocates at the federal, state, and local levels to get them



adopted. Their priorities to action are taxes on sugary drinks and access to healthy food.

The Sugary-Drink Tax in Seattle

Case study: how soda taxes are functioning in

Seattle and how the resources are being used to better the health of the city. *By Jim Krieger, 8/18/19*

Food Prescription Programs

Background

Food as Medicine: In Action

Learn more about how food prescriptions work, the goals of the program, and how they are impacting their participants.

By Fenit Nirappil, 5/17/19

Programs and Initiatives

Wholesome Rx

Fruit and Vegetable Prescription Program by [Wholesome Wave](#) operates in 5 states and Washington D.C. In 2013, 54.9 percent of participants who completed the program increased their consumption of fruits and vegetables by an average of 2 cups.

Fresh Prescription: Recipe for a Healthy Detroit

Fruit and vegetable prescription program that serves low-income individuals in Detroit. Program participants also receive nutrition counseling, cooking demonstrations, and educational support for making healthy eating changes. In 2014, 71 percent of participants reported being better able to manage their health conditions after participating in the program.

The SFGH Therapeutic Food Pantry (TFP)

A clinically based prescription food program that partners with San Francisco General Hospital to provide healthy food, nutrition education, and referrals to local food resources.

Medically-Tailored Meals

Background

Our Food Is Killing Too Many of Us

A New York Times article on how nutrition can make the largest impact on American healthcare.

By Dariush Mozaffarian and Dan Glickman, 8/26/19

Programs and Initiatives

Food is Medicine Coalition

An association of nonprofit medically tailored food and nutrition service providers.

Medically Tailored Meals Pilot Program

This program began on April 1, 2018 in eight Californian counties. It serves three medically

tailored meals per day for 12 weeks to 1,000 eligible beneficiaries with congestive heart failure during the three-year period.

Community Servings Food Heals

A not-for-profit food and nutrition program providing services throughout Massachusetts to individuals and families living with critical and chronic illnesses. One of their studies found that medically tailored meals resulted in a 16% net reduction in healthcare costs.

Project Angel Heart

A program that prepares and delivers medically tailored meals to people living with life-threatening illnesses in Denver and Colorado Springs.



Nutrition Education for Healthcare Providers

Background

Nutrition Education in Medicine

Healthcare providers are not typically given adequate nutrition education tools to help their patients. In a 2012–2013 survey of 121 medical schools, 71% of medical schools failed to meet the minimum recommendation of 25 hours, 36% provided 12 or fewer hours, and 9% provided none.

Programs and Initiatives

Accelerating Change in Medical Education

The New York University School of Medicine, a member of the consortium of schools in the [American Medical Association's](#) Accelerating Change in Medical Education initiative, recently

conducted a neighborhood food project in which students canvassed 30 neighborhoods across Manhattan to investigate the availability and cost of basic foods in local grocery stores and restaurants.

University of Chicago Medical School's Culinary Medicine Program

The University of Chicago Medical School offers a four-week pilot culinary nutrition class that includes about an hour on diet-related disease and how to treat it with food, followed by hands-on cooking. Studies show this kind of personal experience makes physicians much more likely to pass along health and nutrition information to their patients.

Supplemental Nutrition Assistance Program (SNAP)

Formerly known as the Food Stamp Program

Background

USDA Food and Nutrition Service

Learn more about SNAP and find out if you are eligible.

Center on Budget and Policy Priorities: Policy Basics of SNAP

Frequently asked questions about SNAP, which serves around 40 million Americans each month.

Recent policy proposals that affect SNAP beneficiaries

The Trump administration proposed changing how states calculate SNAP benefits eligibility, which would cause 9 percent of households nationwide that currently receive benefits to no longer qualify. *By Laura Santhanam, 9/5/19*

Programs and Initiatives

Healthy Incentives Program (HIP)

In Massachusetts, you can use your SNAP benefits to buy fruits and vegetables from a HIP authorized farm or vendor. You will receive \$1 for each dollar you spend on eligible fruits and vegetables, up to a monthly limit. SNAP households are automatically enrolled in HIP.

Double Up Food Bucks

An incentive program in 24 states that doubles the value of SNAP benefits spent at participating farmers' markets and grocery stores.

Physicians Committee for Responsible Medicine: Make Food Stamps Healthy

Efforts to increase the number of healthy foods subsidized by SNAP.



Additional Food and Nutrition Initiatives

Brighter Bites

A Houston-based nonprofit that provides donated fruits, vegetables, and recipes to families at local schools where 80% or more of the students receive free or reduced lunch. In addition, they also provide nutrition education and keep track of program participants' behavior change to understand how to healthfully feed families.

Cooking Matters

A USDA-funded program that teaches parents and caregivers how to shop for and cook healthy meals through interactive, hands-on lessons

and digital education tools and resources. They also work with local community agencies to offer grocery tours and food skills education workshops to the low-income families and childcare professionals that they serve.

The Global Policy and Nutrition Consortium

An initiative based at the Tufts Friedman School of Nutrition Science and Policy which involves connecting public health and nutrition experts to inform prevention strategies and improve worldwide diets and health outcomes.

d19 Lightning Round Talks

At the d19 Executive Innovation Lab, five Food as Medicine leaders keyed us in to the movement. Through their wisdom, we learned how to think about food in new and better ways to improve outcomes. Click on the links below to relive their talks and learn more.

Dr. James Gavin—Chief Medical Officer, Healing Our Village

Dr. Gavin emphasizes the need for a robust solution to reverse the diabetes trend. Given that diets are the main drivers of obesity, he calls on food as medicine as a critical tool.

Dr. Kelly Brownell—Director, World Food Policy Center, Duke University

Dr. Brownell discusses the need for organizations across the food system (for example, food insecurity and obesity) to collaborate.

Dr. Akua Woolbright—Wellness Educator, Whole Cities Foundation

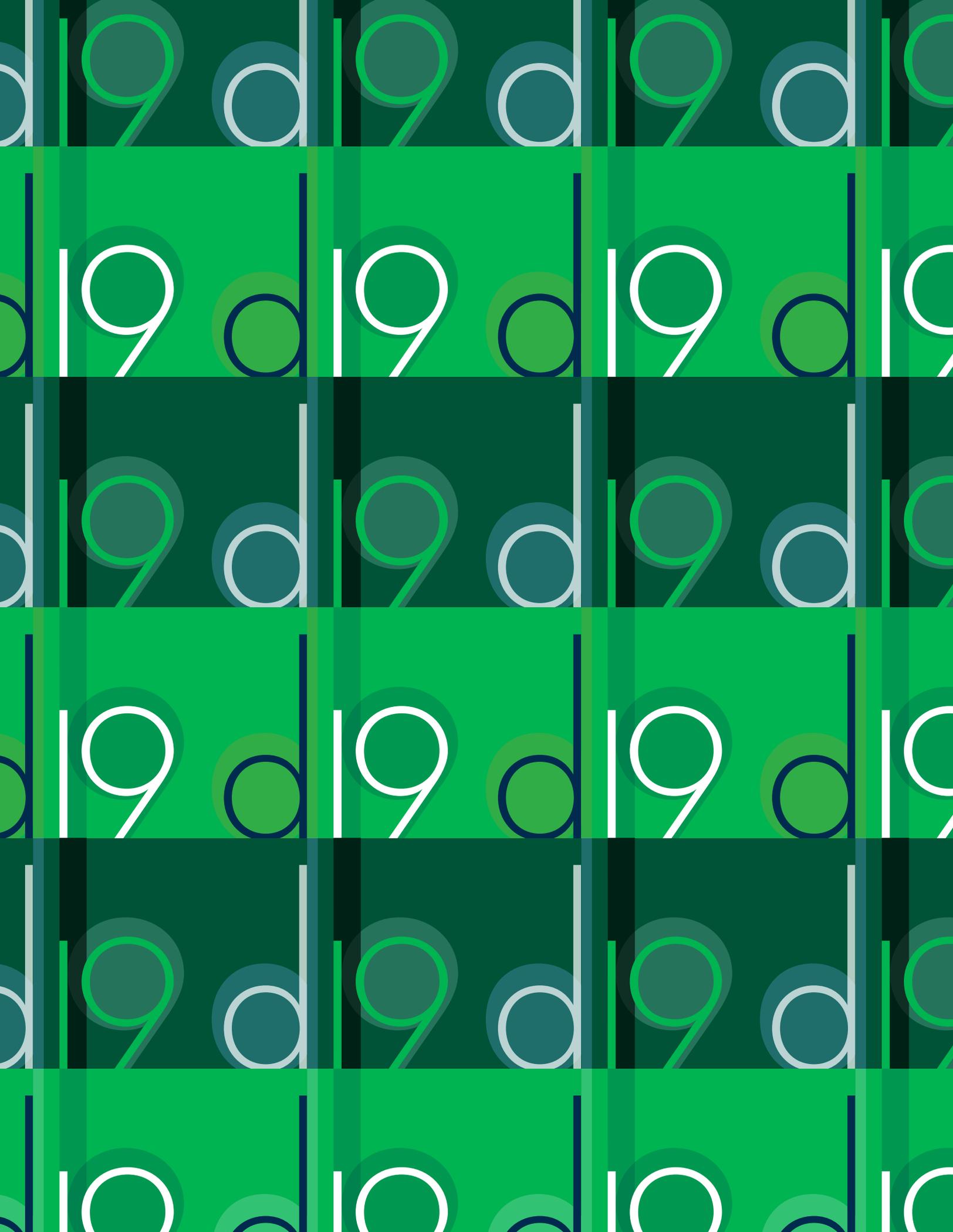
Dr. Woolbright reminds us of the importance of understanding the people we are trying to help.

Dr. Rita Nguyen—Assistant Health Officer and Chronic Disease Physician Specialist, San Francisco Department of Public Health

Dr. Nguyen discusses how empowerment and investment in communities is key to reversing power dynamics and health inequity.

James Corbett—Principal, Initium Health

Mr. Corbett emphasizes the role of emotion and language in the narrative of diabetes, and the importance of recognizing bright spots in the field.





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