

Innovations to Address Social Determinants of Health

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Purpose

Social determinants of health (SDOH) are becoming increasingly integral to the provision of healthcare. To this end, at Econometrica, we feel SDOH and health equity are closely related. Being mindful of health equity helps us identify systems of oppression that can skew results. With that awareness, we can develop effective solutions, leading to meaningful, real-world outcomes.

Introduction

Defined as “the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks,”¹ SDOH include the ability to afford nutritious food, access to environments that promote health and limit exposure risks, and the ability to find safe and affordable housing. These basic resources are not distributed equally among all populations in the United States, resulting in longstanding and well-documented health inequities.

Research reinforces that SDOH are inextricably linked to health status. For example:

- Housing instability (defined as being behind on rent, having multiple moves, or experiencing homelessness) is associated with poorer children’s health, child developmental risks, maternal depressive symptoms, and worse caregiver health.²
- Hispanics living in public housing are more likely to report cardiovascular disease than their counterparts receiving Section 8 vouchers or other housing assistance.³
- Seniors who are food insecure (i.e., insufficient access to adequate food due to lack of money or other resources) have worse health status and more physical limitations than seniors with adequate food access.⁴
- Income inequality is associated with health problems such as diabetes, heart disease, and depression.⁵

Over the past few years, as events like the COVID-19 pandemic and police violence against Black people have increased the attention paid to social forces and health disparities, several federal agencies and other organizations have doubled down on their commitment to reduce inequity. In 2020, for example, the Biden Administration issued Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, which requires the Federal Government to assess existing policies and practices that create barriers to equity and engage in new activities to advance equity for all citizens.⁶ The Centers for Medicare & Medicaid Services (CMS),⁷ Agency for Healthcare Research and Quality

1 U.S. Department of Health & Human Services, Office of Disease Prevention and Health Promotion. (n.d.). *Social determinants of health*. Healthy People 2030. Retrieved July 13, 2022, from <https://health.gov/healthypeople/priority-areas/social-determinants-health>.

2 Sandel, M., Sheward, R., Ettinger de Cuba, S., Coleman, S. M., ... & Cutts, D. (2018). Unstable housing and caregiver and child health in renter families. *Pediatrics*, 141(2), e20172199. <https://doi.org/10.1542/peds.2017-2199>

3 Chambers, E., & Rosenbaum, E. (2014). *Housing and cardiovascular disease among Latinos*. MacArthur Foundation. <https://housingmatters.urban.org/sites/default/files/wp-content/uploads/2014/09/How-Housing-Matters-Policy-Research-Brief-Housing-and-Cardiovascular-Disease-among-Latinos.pdf>

4 Gundersen, C., & Ziliak, J. P. (2015). Food insecurity and health outcomes. *Health Affairs*, 34(11), 1830–1839. <https://doi.org/10.1377/hlthaff.2015.0645>

5 Mathewa, P., & Brodersen, D. M. (2018). Income inequality and health outcomes in the United States: An empirical analysis. *The Social Science Journal*, 55(4), 432–442. <https://doi.org/10.1016/j.soscij.2018.05.001>

6 Exec. Order No. 13985, 86 Fed. Reg. 7009 (2021, January 20). <https://www.govinfo.gov/content/pkg/FR-2021-01-25/pdf/2021-01753.pdf>

7 CMS. (2022). *CMS Strategic Plan – Pillar: Health equity*. <https://www.cms.gov/files/document/health-equity-fact-sheet.pdf>

(AHRQ),⁸ and Centers for Disease Control and Prevention (CDC)⁹ have each established strategic plans that set objectives related to addressing the link between SDOH and health outcomes. Healthy People 2030, the strategic roadmap for improving the Nation’s health, specifically prioritizes SDOH in one of its five overarching goals.¹⁰

Mirroring this Federal commitment to addressing social determinants, many health systems, providers, and insurers have begun or increased efforts to assess and address SDOH. These efforts—providing transportation or housing supports, for example—are traditionally outside the purview of providers and payers, but stakeholders increasingly realize the health benefits of reducing or eliminating barriers to accessing health and health-promoting resources. Many of these efforts are innovative and have shown preliminary evidence of effectiveness. This paper outlines several examples of health system investment into innovative SDOH efforts, grouped by major SDOH domain.



Non-Emergent Medical Transportation

Federal regulations guarantee all Medicaid beneficiaries access to non-emergent medical transportation (NEMT) when necessary. This transportation may be provided by taxis, public transportation, or vans, with specific requirements and types of transportation determined by individual States. Easing transportation barriers has been found to be highly cost-effective for patients with a variety of health conditions.¹¹

Recently, rideshare apps have become providers of NEMT. Lyft Healthcare,¹² which has partnerships with many healthcare providers, insurers, and NEMT services, can be used in two different ways. The first, Lyft Concierge, allows providers to schedule rides for their patients to get to and from appointments. This system makes it possible for patients without smartphones to use Lyft’s services, but it can be less convenient than the typical experience of using the app. Lyft Pass for Healthcare, which was released last year, addresses this concern by allowing individuals to schedule rides for themselves. Organizations using Lyft Healthcare include Blue Cross Blue Shield, ChenMed, and SafeRide Health. Uber Health is a similar program run by Uber.¹³ Like Lyft Concierge, providers can schedule rides for their patients, who will then receive a text when their ride has arrived. In addition, Uber Health can also be used to deliver prescriptions and medical supplies to patients’ homes. Organizations currently working with Uber Health include CVS Health and Boston Medical Center.

Although data on healthcare outcomes associated with NEMT are scarce due to the novelty of this approach, such rideshare partnerships have the potential to save the healthcare system millions of dollars.¹⁴

8 AHRQ. (2022, June). *AHRQ’s patient-centered outcomes research strategic framework*. Retrieved July 13, 2022, from <https://www.ahrq.gov/pcor/strategic-framework/index.html>.

9 CDC. (2022, March 16). *CDC core health equity science and intervention strategy*. Retrieved July 13, 2022, from <https://www.cdc.gov/healthequity/core/index.html>.

10 U.S. Department of Health & Human Services, Office of Disease Prevention and Health Promotion. (n.d.).

11 Musumeci, M., & Rudowitz, R. (2016). *Medicaid non-emergency medical transportation: Overview and key issues in Medicaid expansion waivers*. Kaiser Family Foundation. <https://www.kff.org/medicaid/issue-brief/medicaid-non-emergency-medical-transportation-overview-and-key-issues-in-medicaid-expansion-waivers/>

12 <https://www.lyft.com/healthcare>

13 <https://www.uberhealth.com/>

14 Rochlin, D. H., Lee, C.-M., Scheuter, C., Milstein, A., & Kaplan, R. M. (2019). Economic benefit of “modern” nonemergency medical transportation that utilizes digital transportation networks. *American Journal of Public Health*, 109(3), 472–474. <https://doi.org/10.2105/ajph.2018.304857>

Housing Supports

Supportive housing combines affordable housing assistance with other health and social services. It can involve a mixture of apartment sites specifically for patients at risk of homelessness, units set aside in other building projects, and rent subsidies that allow patients to find apartments throughout the community.¹⁵ These programs frequently target patients with disabilities, mental illness, or substance abuse disorders, though they are beginning to expand to other populations.



One of the first large-scale supportive housing programs in the United States is the Louisiana Permanent Supportive Housing (PSH) Program, which was created by the Louisiana Department of Health and Housing Corporation as part of the State's recovery effort following Hurricanes Katrina and Rita in 2005.¹⁶ To qualify, households must meet low-income requirements, demonstrate a need for housing through the program, and include a member with a long-term disability. As of 2012, the program had provided housing for over 2,300 people and was estimated to reduce Medicaid costs for participants by 25 percent.¹⁷

Since then, other States have also adopted supportive housing programs. The Arizona Health Care Cost Containment System (AHCCCS) Housing Program provides rent subsidies and supportive services to recipients of Arizona's Medicaid plan who are experiencing homelessness.¹⁸ The program has been associated with decreased emergency department visits, inpatient hospitalizations, and behavioral health facility admissions for participants.¹⁹ Previously, most units in the program were limited to people designated as having a serious mental illness, with a limited number open to other individuals with less serious mental illnesses. Recently, however, a new Medicaid demonstration project was approved in Arizona. The Housing and Healthy Opportunities demonstration will expand eligibility from the original housing program to many other groups, including people who are pregnant or have chronic health conditions, as well as youth who are aging out of foster care.

Health insurers have also invested in supportive housing programs. For example, UPMC Health Plan created the Cultivating Health for Success program in partnership with Community Human Services, a local U.S. Department of Housing and Urban Development (HUD) vendor. It is open to members of the UPMC for You Medicaid plan who have a medical disability, a year of high healthcare costs, and are experiencing homelessness. In the first 5 years of the program, 51 individuals were housed, resulting in net healthcare savings of \$6,384 for each housed member.²⁰

15 U.S. Interagency Council on Homelessness. (2018, August 15). *Supportive housing*. Retrieved July 13, 2022, from <https://www.usich.gov/solutions/housing/supportive-housing/>.

16 Louisiana Department of Health. (n.d.). *Permanent supportive housing (PSH)*. Office of Aging and Adult Services. Retrieved July 13, 2022, from <https://ldh.la.gov/page/1732>.

17 Arienti, F., & Knisley, M. (2012). *Taking integrated permanent supportive housing (PSH) to scale: The Louisiana PSH Program*. Technical Assistance Collaborative. <https://www.tacinc.org/resource/taking-integrated-permanent-supportive-housing-psh-to-scale-the-louisiana-psh-program/>

18 <https://www.azahcccs.gov/AHCCCS/Initiatives/AHP>

19 NORC at the University of Chicago. (2018). *Final report: The impact of housing programs and services on health care costs, quality, and member experience*. <https://www.mercycareaz.org/assets/pdf/news/Housing-Report.pdf>

20 Modern Medicaid Alliance. (n.d.). *Featured Medicaid solution: UPMC for you – Cultivating health for success*. Retrieved July 13, 2022, from https://modernmedicaid.org/medicaid_solutions_upmc_for_you/

Economic Stability

Health providers can help to increase patients' economic stability through Medical-Financial Partnerships (MFP), which are collaborations between healthcare and financial service organizations that seek to improve patients' health by reducing their financial stress.²¹ Although there have been few studies on the health impacts of MFPs, financial support such as the Earned Income Tax Credit (EITC) have been shown to promote better health.²² StreetCred is a program started by Boston Medical Center that offers tax preparation, financial counseling, and enrollment in college savings accounts to families while they are at the pediatrician's office.²³ A major focus of the program is ensuring that participants receive the EITC and any other benefits they are entitled to. In a 2017 pilot study, individuals who participated in the program were significantly more likely to report awareness and receipt of the EITC.²⁴



The focus of many MFPs is on neonatal and postpartum health. For example, Early Bird²⁵ was started in 2020 through a partnership between Lone Star Circle of Care, United Way, UT Austin, and Foundation Communities.²⁶ Pregnant mothers in central Texas could apply to participate in a randomized control trial of the program, which includes a college savings account for their newborn; financial coaching sessions; and incentives for completing health-related milestones, such as attending checkups at their doctor. In California, Oakland Promise Brilliant Baby²⁷ recruited families with newborns to participate in a randomized control trial. This program, which is available to Oakland residents receiving Medi-Cal, the State's Medicaid program, sets up a college savings account for the child and offers financial coaching to parents, who receive a stipend for attending. While the study is still ongoing, a 6-month follow-up report released last year showed lower parental stress, increased parental expectations about their child's level of educational attainment, increased parental hope, and increased family income and financial well-being.²⁸

Food Security

The concept that "food is medicine" refers to interventions that target both nutrition and health by providing individuals with food while also treating or preventing diet-related health conditions. These interventions have risen in popularity in recent years, including being mentioned in the White House National Strategy on Hunger, Nutrition, and Health released in September 2022,²⁹ which recommends increasing access to these types of programs through Medicare and Medicaid.

Medically tailored meals are prepared meals that are designed to meet specific nutrition needs for individuals with serious illnesses. They are often provided through nonprofit organizations, such as



21 Marcil, L. E., Hole, M. K., Jackson, J., Markowitz, M. A., ... & Vinci, R. J. (). Anti-poverty medicine through medical-financial partnerships: A new approach to child poverty. *Academic Pediatrics*, 21(8), S169–S176. <https://doi.org/10.1016/j.acap.2021.03.017>

22 Rehkopf, D. H., Strully, K. W., & Dow, W. H. (2014). The short-term impacts of Earned Income Tax Credit disbursement on health. *International Journal of Epidemiology*, 43(6), 1884–1894. <https://doi.org/10.1093/ije/dyu172>

23 <https://www.mystreetcred.org/>

24 Marcil, L. E., Hole, M. K., Wenren, L. M., Schuler, M. S., ... & Vinci, R. J. (2018). Free tax services in pediatric clinics. *Pediatrics*, 141(6), e20173608. <https://doi.org/10.1542/peds.2017-3608>

25 <https://www.earlybirdfund.org/>

26 Rosen, L. (2022, April 22). *Early Bird: A pilot to improve children's health & educational attainment*. Dell Medical School. <https://dellmed.utexas.edu/blog/early-bird-a-pilot-to-improve-childrens-health-educational-attainment>

27 <https://oaklandpromise.org/brilliant-baby/>

28 Hernandez, M., Hedberg, E. Long, D., Feinstein, A., ... & du Toit, N. (2021). *Oakland Promise Brilliant Baby: 6-month follow-up report*. <https://oaklandpromise.org/wp-content/uploads/2021/05/OP-BrilliantBaby-6MonthRCTfinalreport.pdf>

29 The White House. (2022, September). *Biden-Harris Administration national strategy on hunger, nutrition, and health*. <https://www.whitehouse.gov/wp-content/uploads/2022/09/White-House-National-Strategy-on-Hunger-Nutrition-and-Health-FINAL.pdf>

Community Servings in Massachusetts,³⁰ Food and Friends in Washington, DC,³¹ and God’s Love We Deliver in New York.³² Receiving these meals has been shown to be associated with fewer inpatient admissions, lower healthcare costs, improved diet quality, and reduced food insecurity.³³ In California, Medi-Cal began providing medically tailored meals with a pilot program in 2018.³⁴ The program applies only to Medi-Cal beneficiaries with congestive heart failure and includes three meals per day for up to 12 weeks. In the future, more States may begin to adopt similar programs in their Medicaid plans.

Produce prescriptions, which facilitate access to fruits and vegetables for food insecure patients either by providing food directly or by providing funds to purchase it, are also associated with reduced food insecurity and increased intake of fruits and vegetables.³⁵ Produce prescription programs have been implemented in many cities across the United States. In Washington, DC, for example, there are two relevant programs. Through the Produce Plus Program,³⁶ which is funded by DC Health and run by the organization Fresh Farm, any DC resident who is at risk of food insecurity can qualify for a card that provides \$40 per month to spend at farmers’ markets between June and November. More typical of produce prescription programs is the DC Greens Produce Rx program,³⁷ which is run by a partnership between DC Health, Giant, and AmeriHealth Caritas. Providers at participating clinics can prescribe fruits and vegetables to patients with diet-related chronic disease, who then receive a grocery bonus card that is loaded with \$80 a month to spend on produce.

Healthy food benefits are similar to produce prescriptions and are beginning to be included in health insurance plans, particularly through Medicare Advantage. For example, Care Plus has a Healthy Food Card program for dual-eligible beneficiaries in which each month, funds are loaded onto a card that can be used at Walmart, CVS, or Walgreens on most food and beverage purchases.³⁸ Similarly, Humana’s Healthy Options Allowance is an expansion of a previous Healthy Food Card program that is available for all dual-eligible members and in select plans for members with chronic illnesses.³⁹ The allowance ranges from \$35 to \$275 per month and can be used to pay for a variety of expenses, including eligible groceries. Unlike the preceding programs, which are associated with particular plans, Aetna offers a Healthy Food Card in some States that is available through any Aetna Better Health plan.⁴⁰ Members can request a card if they are experiencing a high-risk pregnancy, have a child experiencing obesity, or are 17 to 26 years old and aging out of foster care. As continued research further demonstrates the benefit of these programs to patients, providers, and insurers alike, we can expect them to be adopted more broadly and begin to reduce inequitable health outcomes.

30 <https://www.servings.org/>

31 <https://foodandfriends.org/>

32 <https://www.glwd.org/>

33 Berkowitz, S. A., Terranova, J., Randall, L., Cranston, K., ... & Hsu, J. (2019). Association between receipt of a medically tailored meal program and health care use. *JAMA Internal Medicine*, 179(6), 786–793. <https://doi.org/10.1001/jamainternmed.2019.0198>; Berkowitz, S. A., Terranova, J., Hill, C., Ajayi, T., ... & DeWalt, D. A. (2018). Meal delivery programs reduce the use of costly health care in dually eligible Medicare and Medicaid beneficiaries. *Health Affairs*, 37(4). <https://doi.org/10.1377/hlthaff.2017.0999>; Berkowitz, S. A., Delahanty, L. M., Terranova, J., Steiner, B., ... & Wexler, D. J. (2019). Medically tailored meal delivery for diabetes patients with food insecurity: A randomized cross-over trial. *Journal of General Internal Medicine*, 34(3), 396–404. <https://doi.org/10.1007/s11606-018-4716-z>

34 <https://www.calfimc.org/mtm-state-pilot-program>.

35 Xie, J., Price, A., Curran, N., & Østbye, T. (2021). The impact of a produce prescription programme on healthy food purchasing and diabetes-related health outcomes. *Public Health Nutrition*, 24(12), 3945–3955. <https://doi.org/10.1017/S136898021001828>; Aiyer, J. N., Raber, M., Bello, R. S., Brewster, A., ... & Sharma, S. V. (2019). A pilot food prescription program promotes produce intake and decreases food insecurity. *Translational Behavioral Medicine*, 9(5), 922–930. <https://doi.org/10.1093/tbm/ibz112>

36 <https://dchealth.dc.gov/service/produce-plus-program>

37 <https://www.dcgreens.org/produce-rx>

38 <https://www.careplushealthplans.com/members/healthy-foods-card>

39 <https://www.humana.com/medicare/medicare-programs/healthy-foods-card>

40 <https://www.aetnabetterhealth.com/virginia/healthy-food-card.html>

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