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INVESTING IN INTERVENTIONS THAT ADDRESS NON-MEDICAL, HEALTH-RELATED SOCIAL NEEDS

PROCEEDINGS OF A WORKSHOP

Rose Marie Martinez and Joe Alper, *Rapporteurs*

Board on Population Health and Public Health Practice

Health and Medicine Division

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[1] The National Academies of Sciences, Engineering, and Medicine's planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published Proceedings of a Workshop rests with the workshop rapporteurs and the institution.

Reviewers

This Proceedings of a Workshop was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the National Academies of Sciences, Engineering, and Medicine in making each published proceedings as sound as possible and to ensure that it meets the institutional standards for quality, objectivity, evidence, and responsiveness to the charge. The review comments and draft manuscript remain confidential to protect the integrity of the process.

We thank the following individuals for their review of this proceedings:

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UCHE S. UCHENDU, Health Management Associates

Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the content of the proceedings nor did they see the final draft before its release. The review of this proceedings was overseen by **HARRY J. HEIMAN,** Georgia State University. He was responsible for making certain that an independent examination of this proceedings was carried out in accordance with standards of the National Academies and that all review comments were carefully considered. Responsibility for the final content rests entirely with the rapporteurs and the National Academies.

Acknowledgments

The National Academies of Sciences, Engineering, and Medicine wishes to express its sincere gratitude to Daniel Polsky, planning committee chair, for his valuable contributions to the development and orchestration of this workshop and to the members of the planning committee who collaborated to ensure a workshop complete with informative presentations and rich discussions. Finally, many thanks to the speakers and moderators, who generously shared their expertise and their time with workshop participants, and the U.S. Department of Health and Human Services' Office of the Assistant Secretary for Health for its support of this workshop.

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BOX

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Acronyms and Abbreviations

ACO	accountable care organization
CAPABLE	Community Aging in Place—Advancing Better Living for Elders
CDC	Centers for Disease Control and Prevention
CMMI	Center for Medicare & Medicaid Innovation
CMS	Centers for Medicare & Medicaid Services
DoN	determination of need
ED	emergency department
EHR	electronic health record
HHS	U.S. Department of Health and Human Services
HIPAA	Health Insurance Portability and Accountability Act
HUD	U.S. Department of Housing and Urban Development
IMPaCT	Individualized Management for Patient-Centered Targets
NCH	Nationwide Children's Hospital
NIH	National Institutes of Health
OECD	Organisation for Economic Co-operation and Development

ROI	return on investment
SIREN	Social Interventions Research & Evaluation Network
SNAP	Supplemental Nutrition Assistance Program
UCSF	University of California, San Francisco
USDA	U.S. Department of Agriculture
VA	U.S. Department of Veterans Affairs
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

1

Introduction[1]

With U.S. health care costs projected to grow at an average rate of 5.5 percent per year from 2018 to 2027, or 0.8 percentage points faster than the gross domestic product, and reach nearly $6 trillion per year by 2027 (CMS, 2019), policy makers and a wide range of stakeholders are searching for plausible actions the nation can take to slow this rise and keep health expenditures from consuming an ever greater portion of U.S. economic output. While health care services are essential to health, there is growing recognition that social determinants of health are important influences on population health.[2] Supporting this idea are estimates that while health care accounts for some 10 to 20 percent of the determinants of health, socioeconomic factors and factors related to the physical environment are estimated to account for up to 50 percent of the determinants of health (Hood et al., 2016; McGinnis et al., 2002). Challenges related to the social determinants of health at the individual level include housing insecurity and poor housing quality, food insecurity, limitations in access

[1] The planning committee's role was limited to planning the workshop, and this Proceedings of a Workshop was prepared by the workshop rapporteurs as a factual summary of what occurred at the workshop. Statements, recommendations, and opinions expressed are those of individual presenters and participants and are not necessarily endorsed or verified by the National Academies of Sciences, Engineering, and Medicine, and they should not be construed as reflecting any group consensus.

[2] According to the World Health Organization, the social determinants of health are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. See https://www.who.int/social_determinants/en (accessed July 29, 2019).

to transportation, and lack of social support. These social needs affect access to care and health care utilization as well as health outcomes. Health care systems have begun exploring ways to address non-medical, health-related social needs as a way to reduce health care costs.

To explore the potential effect of addressing non-medical, health-related social needs on improving population health and reducing health care spending in a value-driven health care delivery system, the Board on Population Health and Public Health Practice of the National Academies of Sciences, Engineering, and Medicine (the National Academies) held a full-day public workshop titled Investing in Interventions That Address Non-Medical, Health-Related Social Needs on April 26, 2019, in Washington, DC. The objectives of the workshop were to explore effective practices and the supporting evidence base for addressing the non-medical, health-related social needs of individuals, such as housing and food insecurities; review assessments of return on investment (ROI) for payers, health systems, and communities; and identify gaps and opportunities for research and steps that could help to further the understanding of the ROI on addressing non-medical, health-related social needs.

The presentations and discussions highlighted in this Proceedings of a Workshop provide a general discussion of the issues, trends, and the opportunities and challenges of investing in interventions that address patients' non-medical, health-related social needs and health care spending. The presentations illustrate a range of innovation and experimentation and underscore the need to advance evaluation methods, including those to assess ROI for different types of investors to further build the evidence base and the business case for investing in non-medical, health-related social needs.

ORGANIZATION OF THE PROCEEDINGS

An independent planning committee organized this workshop in accordance with the procedures of the National Academies. The planning committee's members were John Auerbach, Seth A. Berkowitz, Dave Chokshi, Deidra Crews, Karen DeSalvo, Arvin Garg, Maurice Jones, and Daniel Polsky. This Proceedings of a Workshop summarizes the presentations and discussions. Chapter 2 recounts the stage-setting keynote address that opened the workshop and the subsequent panel session that provided perspectives on investing in individuals' unmet social needs and community-level social determinants. Chapters 3, 4, and 5 examine a range of interventions for addressing unmet social needs. Chapter 6 discusses issues involving the ROI for various interventions, and Chapter 7 identifies research gaps that need to be filled. Chapter 8 concludes the

proceedings with reflections on the day. Appendix A contains the workshop Statement of Task. Appendix B contains the workshop agenda and Appendix C provides biographical sketches of the workshop speakers. The workshop speakers' presentations have been archived online as PDF and video files.[3]

In accordance with the policies of the National Academies, the workshop did not attempt to establish any conclusions or recommendations about needs and future directions, focusing instead on issues identified by the speakers and workshop participants. In addition, the organizing committee's role was limited to planning the workshop. This Proceedings of a Workshop was prepared by workshop rapporteurs as a factual summary of what occurred at the workshop.

[3] For additional information see http://www.nationalacademies.org/hmd/Activities/PublicHealth/ReducingHealthCareSpendingThroughInterventionsAddressNonMedicalHealthSocialNeeds/2019-APR-26.aspx (accessed May 31, 2019).

2

Setting the Stage

Key Points Raised by Individual Speakers

- Zip code matters more than genetic code when it comes to health outcomes, a situation that has changed little, if any, over the past 30 years. (Giroir)
- A confluence of biological advances and the availability of policy options creates a unique set of opportunities to effect change with regard to the trajectory of U.S. health care spending. (Giroir)
- Research has shown that social determinants and adverse life events can have long-lasting biological effects on health. (Giroir)
- The Centers for Medicare & Medicaid Services' new value-based reimbursement model focuses on preventing disease before it occurs and progresses, and it gives doctors the freedom, rewards, and tools to keep people healthy. (Giroir)
- Treating investments in addressing non-medical factors as infrastructure investments could change the business model and expectations for return on investment. (Giroir, Lindau)
- Non-medical, health-related social needs are different than the social determinants of health, and it is important to distinguish between these two different but related concepts because they require different approaches to address them. (Auerbach)

- Resources exist to make large, population-wide changes that would address social determinants of health and non-medical, health-related social needs. (Auerbach)
- Though it may seem overwhelming to tackle policy and regulatory changes, there are resources available to help organizations with this task. (Auerbach)
- Accepting that social determinants are the root causes of many health issues is the first step in a trajectory toward social justice. This requires taking on such structural inequities as racial discrimination, mass incarceration, and poverty. (Chokshi)
- The health sector, community, and regulatory environment can complement each other in efforts to address social needs and social determinants of health. (Polsky)
- Affordable housing should be a priority investment given evidence showing that housing insecurity is the most common impediment to good health. (Auerbach)
- Ultimately everyone will be a Medicare beneficiary at some point, thus, there is a strong case to make for the federal government to make investments in the social determinants of health. (Giroir)

The workshop began with a keynote address delivered by Admiral Brett P. Giroir, Assistant Secretary of Health at the U.S. Department of Health and Human Services (HHS), followed by a panel session that laid the groundwork for the rest of the day's presentations and discussions. The panelists were John Auerbach, President and Chief Executive Officer of Trust for America's Health; Dave Chokshi, Chief Population Health Officer for New York City Health + Hospitals; and Monica Bharel, Commissioner of the Massachusetts Department of Health. Discussions moderated by Daniel Polsky, Bloomberg Distinguished Professor of Health Policy and Economics at Johns Hopkins University's Bloomberg School of Public Health, followed the keynote address and the panelists' short presentations.

KEYNOTE ADDRESS

Admiral Brett P. Giroir began his presentation by noting that the nation's spending on health care has not translated into better health for Americans. Though the United States currently spends 17.9 percent of the gross national product on health care—a number that far exceeds that of the other 35 members of the Organisation for Economic Co-operation and

Development (OECD)—U.S. life expectancy ranks 28th out of 36 OECD countries, while infant mortality ranks 33rd and suicide rate ranks 30th. He also pointed out that for the first time in decades, life expectancy of U.S. residents decreased in 2018.

Though the United States spends a bulk of its health care dollars on clinical care, access to medical care and the quality of care each accounts for only about 10 percent of an individual's health outcomes, while social and economic factors determine some 40 percent of health outcomes (see Figure 2-1).

Research shows, in fact, that basic measures of health in OECD countries and among U.S. states are more closely and positively associated with social service spending than with health spending (Bradley et al., 2011, 2016). Giroir reminded the workshop attendees of the following:

- Forty-two percent of all U.S. cancer cases are tied to behavior and are thus preventable (Islami et al., 2018).
- Simple dietary changes could prevent at least half of the estimated 700,000 annual deaths from heart disease (Micha et al., 2017).
- The United States would save $117 billion in annual health care costs and eliminate 10 percent of all premature mortality if everyone were moderately active for 150 minutes per week (Piercy et al., 2018).

He noted, too, that some 60 percent of today's 2-year-olds, if projections hold, will be clinically obese by the time they turn 35 years old (Ward et al., 2017), and that 75 percent of 18- to 24-year-olds cannot qualify for military service because of obesity, lack of fitness, educational background, or drug use (Christeson et al., 2015). One of the more shocking statistics Giroir said he learned upon taking the role of assistant secretary of health was that except for specific circumstances, zip code matters more than genetic code in terms of health outcomes (Dwyer-Lindgren et al., 2017) (see Figure 2-2). Moreover, his principal deputy informed him that this map has changed little if any over the past 30 years.

Giroir believes that a confluence of biological advances and the availability of policy options creates a unique set of opportunities to effect change with regard to the trajectory of U.S. health care spending. Research has shown, for example, social determinants can have long-lasting biological effects on health (Braveman and Gottlieb, 2014; Cockerham et al., 2017), and he believes this is a message the public needs to hear to disabuse it of the idea that social determinants are some fuzzy concept. Infection with Zika virus, for example, is both a medical condition and a condition of the cramped living quarters and poor sanitation that accompanies poverty. Similarly, hookworm infection, which causes chronic anemia and

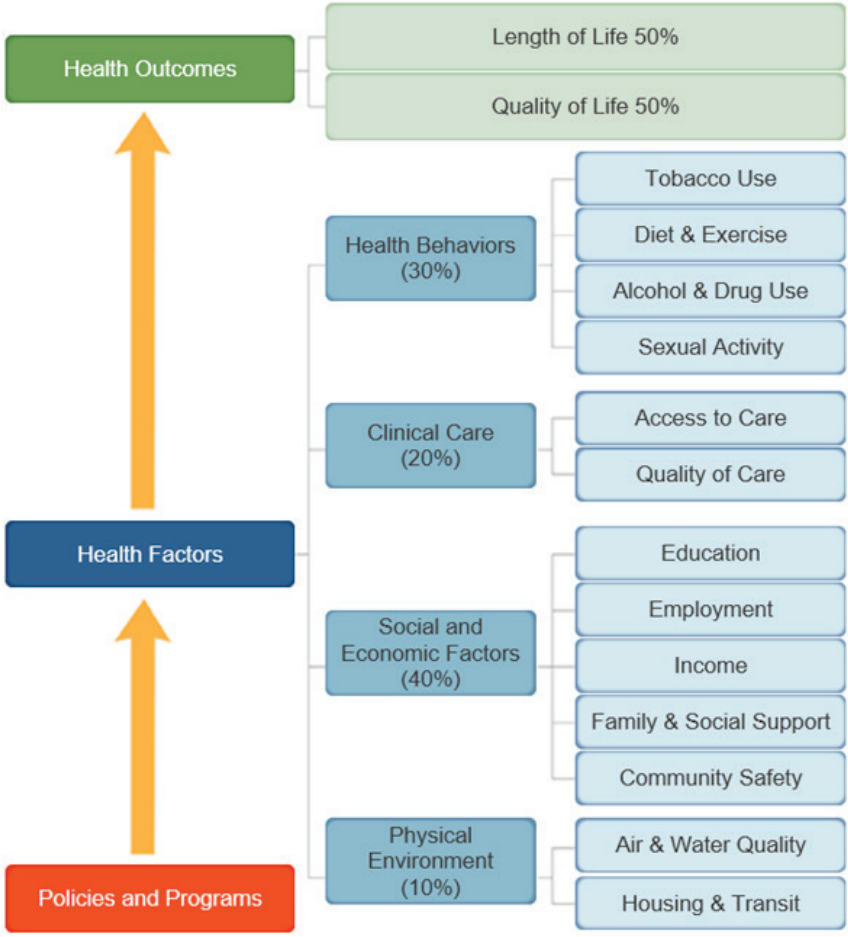

FIGURE 2-1 The many factors that play a role in determining an individual's health outcomes.
SOURCES: Presented by Admiral Brett P. Giroir, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Reproduced with permission from the University of Wisconsin Population Health Institute. County Health Rankings & Roadmaps 2019.

delays in cognitive development, is endemic in some parts of the southern United States that lack modern sanitation. "Tell me where the investment should be for those children who are going to have a lifetime of infectious poverty," said Giroir. Research has also shown that life experiences, including child abuse and even the educational level of the mother, can

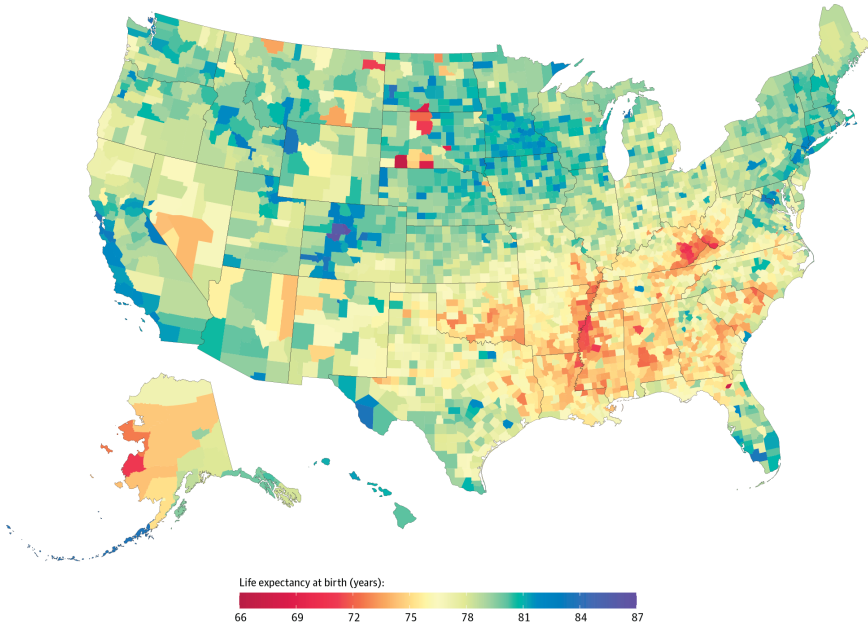

FIGURE 2-2 Inequalities in life expectancy across counties are large and increasing over time.
SOURCES: Presented by Admiral Brett P. Giroir, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs; Dwyer-Lindgren et al., 2017. Reproduced with permission from *JAMA Internal Medicine*. 2017. 177(7):1003–1011. Copyright © (2017). American Medical Association. All rights reserved.

change an individual's epigenetics over the long term (Kanherkar et al., 2014; Suderman et al., 2014).

Addressing the social determinants of health will be one of four overarching objectives in the upcoming *Healthy People 2030* report, said Giroir. He also noted that one of four priorities for the Secretary of HHS, Alex Azar II, is to transform the nation's health care system to one that pays for value, which will most certainly include addressing the social determinants of health as part of the value equation. Giroir emphasized how important it was for the workshop to begin assembling the theoretical and academic knowledge bases that will be required to create such a value-based agenda.

As part of this effort, the Centers for Medicare & Medicaid Services (CMS) announced on April 22, 2019, that it was rolling out a value-based reimbursement model that will affect 11 million Medicare fee-for-service

beneficiaries, 25 percent of primary care practitioners, and as many as 12 million individuals eligible for both Medicare and Medicaid. The focus of this model, explained Giroir, is on preventing disease before it occurs and progresses as it eases the connection of Medicare beneficiaries to primary care physicians, and it will give doctors the freedom, rewards, and tools to keep people healthy. The private sector, he said, has started moving in this direction, too. As an example, he cited Humana's screening of more than 500,000 seniors for food insecurity and loneliness and the associated 2.7 percent reduction in "unhealthy days" Humana's beneficiaries have experienced since this effort started in 2015.

Giroir concluded his keynote address by asking the workshop participants to answer two questions over the course of the day:

- Are there specific recommendations on how, where, and when to demonstrate the effectiveness of investments in the social determinants of health?
- How do we create a universal business case (and to whom) when the benefits of investing may be far removed from the effect on health or financial savings and dissociated from the people making the investment?

This second question, he said, bothers him a great deal, whether it arises in treating people for hepatitis C or screening people with HIV and providing them with state-of-the-art drug regimens, both of which have huge upfront costs but produce great societal savings in the future. "Often, the benefits are dissociated from the people making the investment," said Giroir.

Discussion

Stacy Lindau from The University of Chicago began the discussion by suggesting that investments in addressing non-medical factors affecting health could be treated as an infrastructure investment, which would change the business model and ROI expectations. Giroir responded that both he and the Secretary of HHS are considering how to do that. Part of his job is to preach on a daily basis to senior administration officials that health is not just a medical care issue. He points out regularly that it is hard to exercise if the neighborhood is not safe and hard to eat a healthy diet and avoid obesity when one is food insecure.

Shreya Kangovi from the University of Pennsylvania raised the concern that many estimates for ROI are based on studies plagued by regression to the mean and she wondered to what extent decision makers are aware of this issue. Giroir replied that he was not aware of that problem

and hoped that the workshop would help him better understand this methodological issue. He noted that the Surgeon General is conducting a detailed study that will develop a set of business cases to support investments into health and the social determinants. Along the same lines, Karen DeSalvo from The University of Texas at Austin asked how HHS and the National Institutes of Health are thinking about building a strong, methodologically sound evidence base on interventions to address social determinants. Giroir replied that one reason for including in this workshop a session on research gaps was to understand where the needs are in developing just such an evidence base. He noted that HHS recently announced a $350 million project that will study four communities for 3 years to determine whether a comprehensive approach that includes housing and social services can reduce drug overdose rates by 40 percent.[1]

Elizabeth Marshall from the Society for Public Health Education asked Giroir if his office was working on addressing some of the social determinants that affect pregnant women, and he replied that HHS is taking a deep dive into maternal mortality and maternal health care. He noted that the department is broadening this effort to include the mother–child dyad.

Jeffrey Levi from The George Washington University asked if HHS is thinking about how it might invest in creating the community-based infrastructure and resources that health care systems can partner with to address the social determinants of health as part of CMS's new value-based payment system about which Giroir spoke. While Giroir was not sure of the details, he said the administration's across-the-board emphasis is on trying to find community-based solutions to health-related problems. Though not directly connected to the CMS payment initiative, Giroir said his office's HIV/AIDS program is focused on community-based solutions and is investing $30 million in those solutions. Levi then pointed out that the Ryan White HIV program is an example of where the government invested over many decades in building the right infrastructure to address not just immediate health care needs but also social determinants. "It took an investment in infrastructure in every community across the country, and there needs to be a parallel effort if we are going to succeed more broadly in addressing social determinants," said Levi.

Uche Uchendu from Health Management Associates commented that during her time at the U.S. Department of Veterans Affairs (VA), she and her colleagues connected social determinants with health care quality measures as part of the VA's quality improvement initiatives. For example, blood A1C measures were connected to food insecurity and

[1] Information available at https://www.hhs.gov/about/news/2019/04/24/hhs-fact-sheet-combating-the-opioid-crisis.html (accessed July 29, 2019).

walkability in a community. Connecting quality measures to social factors informs the practical management options provided by the clinical health care team. She also pointed to the importance of building bridges between the health care sector and communities to address the social determinants that health care systems are not well equipped to tackle. Giroir replied that the VA has done exceptional work on the social determinants of health, particularly in the area of veteran housing insecurity and homelessness. One advantage the VA has, though, is that it keeps its patient population for a long time, allowing it to recapture the investments it makes in the area of social determinants. Having said that, he noted that most everyone is going to be a Medicare beneficiary at some point, and as a result, there is a strong case to make for the federal government to make such investments.

TWO DIFFERENT BUT COMPLEMENTARY MEANINGS

To start his presentation, John Auerbach described two different concepts—(1) non-medical, health-related social needs and (2) social determinants of health—and the different approaches their solutions require. Solutions for non-medical, health-related social needs require "identifying and helping address the social and economic needs of patients." Offering some examples, he listed helping patients find stable, safe housing; helping patients sign up for assistance from the Supplemental Nutrition Assistance Program (SNAP) or the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); helping patients connect to a medical–legal partnership; or helping patients get protection from violence or abuse. Non-medical, health-related social needs, he explained, can be resolved or addressed through referrals to various community organizations.

Addressing the social determinants of health requires a different approach. Solutions to social determinants of health require "changing the law or implementing a policy that affects an entire community." His examples included significantly increasing affordable housing, improving economic or educational opportunities, or reducing racial and other discrimination. Social determinants of health are the root causes of non-medical, health-related social needs, and Auerbach said it is important to distinguish between these two different—but related—concepts because they require different approaches to address them. He shared a visual representation of how the social determinants of health and non-medical, health-related social needs lie on a continuum (see Figure 2-3).

He explained that upstream solutions address the social determinants or root causes of health disparities at the population level. Midstream solutions address non-medical, health-related social needs.

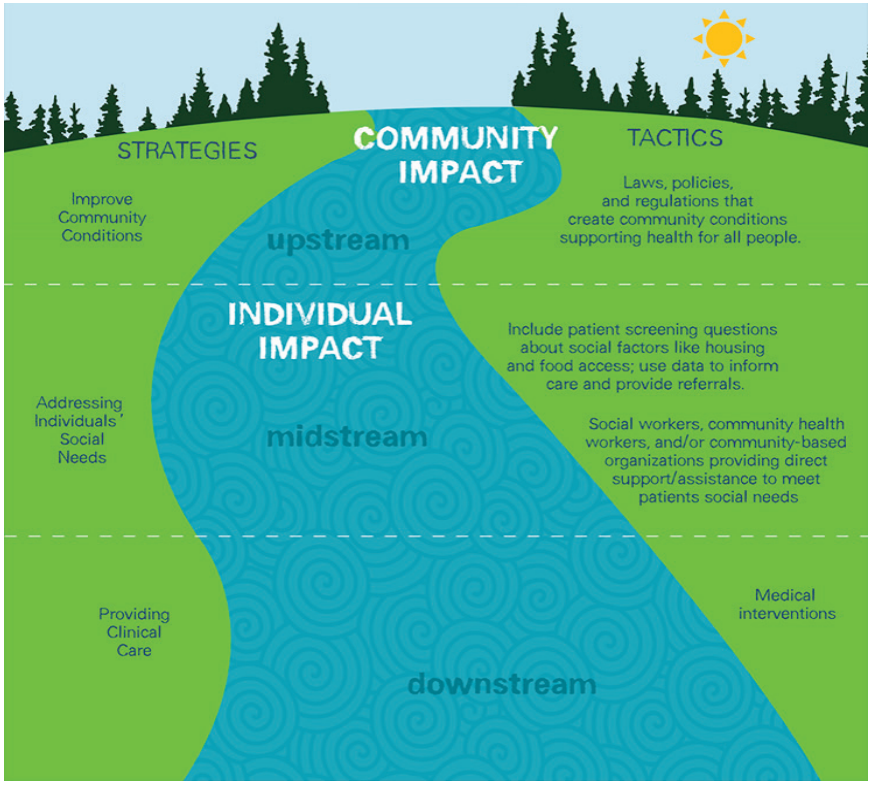

FIGURE 2-3 Visual representation of where the social determinants of health and non-medical social needs lie on a continuum.
SOURCE: Presented by John Auerbach, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs.

Downstream solutions are those medical interventions that occur in the clinic.

While it is important to work simultaneously at multiple levels to address non-medical social needs and social determinants of health, individual institutions, agencies, and sectors may focus on one particular level or context, said Auerbach. For example, health care organizations may choose to implement screening for non-medical social needs and provide in-house assistance with social services. However, those organizations are likely to work in partnership with, or even help establish, community-based organizations to provide various services outside of the health sector, such as food or housing assistance. Health care and community-based organizations may work together to advocate for changing laws or regu-

lations that affect the social determinants, such as a regulation requiring developers to designate 10 percent of the housing units they build to be affordable or to include retail space in a development that would house a grocery store.

The good news, said Auerbach, is that policy resources exist to make large, population-wide changes that would address social determinants of health and non-medical social needs (see Box 2-1). Moreover, it is possible to use these resources to improve overall social and economic conditions.

For example, the federal earned income tax credit provided $27 million in income assistance to 44,000 families in Vermont, reducing poverty levels in the state. He also noted that fair hiring regulations, such as state Ban the Box laws that require employers to consider a job candidate's qualifications first, without the stigma of having checked a box on their job application denoting they had been arrested or convicted of a crime, can increase employment of those who have served time in jail or prison.

Though it may seem overwhelming to tackle policy and regulatory changes, Auerbach said there are policy resources available to help organizations with this task. For example, his organization released a report in February 2019 that includes 13 evidence-based policies that promote health and help control costs at the state level (Lustig and Cabrera, 2019), while the Centers for Disease Control and Prevention's (CDC's) Hi-5 (Healthy Impact in Five Years) initiative and the de Beaumont Founda-

BOX 2-1
Population-wide Policy Resources Exist to Address Social Determinants of Health

1. Universal pre-kindergarten
2. Enhancing school nutrition
3. Earned income tax credit
4. Paid family leave
5. Earned sick leave
6. Fair hiring protections
7. Complete streets
8. Syringe access
9. Smoke-free policies
10. Tobacco pricing strategies
11. Alcohol pricing strategies
12. Housing rehab loan and grants
13. Rapid rehousing

SOURCE: Content presented by Auerbach, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs.

tion's CityHealth program both provide evidence-based and city- and community-level policy recommendations that organizations can use to foment change in their local communities that will improve health.[2,3]

Auerbach's final comment was that there is no one solution to meet all of the non-medical social needs and social determinants that negatively affect health. "We need to mobilize multiple sectors, and they need to be around the table working together," said Auerbach. He added that it is important that sectors outside of health care have the resources, beyond those provided by the health care sector and insurers, to invest in housing, combat segregation at the community level, and create economic security and quality educational opportunities throughout the community.

ADDRESSING HEALTH-RELATED SOCIAL NEEDS AT NEW YORK CITY HEALTH + HOSPITALS

Dave Chokshi started his presentation by recognizing that people have been working on the social determinants of health for decades. The U.S. community health center movement, for example, was rooted in the idea that health care alone is not enough and that it is imperative to address social determinants alongside of health care. Chokshi's hope was that the workshop would consider how to move from addressing social determinants to addressing issues of social justice (see Figure 2-4).

In his view, accepting that the social determinants are root causes of many health issues is the first step in a trajectory linking the concepts of social needs, social services, and social care toward social justice. Ultimately moving from social determinants to social justice requires taking on structural inequities such as racial discrimination, mass incarceration, and poverty.

To provide some context to how his organization thinks about social determinants of health, Chokshi noted that it is the public health care system for New York City, caring for more than 1 million culturally and ethnically diverse patients across all five boroughs. It accounts for nearly half of the city's mental health inpatient admissions and alcohol/detox inpatient admissions. Tens of thousands of its patients do not have a home, thousands are considered "high need," and hundreds of its patients spent more days in the hospital than out of it over the past year.

New York City Health + Hospitals' strategy for addressing the social determinants, based on CMS's Accountable Health Communities model

[2] Information available at https://www.cdc.gov/policy/hst/hi5/index.html (accessed May 15, 2019).

[3] Information available at https://www.debeaumont.org/programs/cityhealth (accessed May 15, 2019).

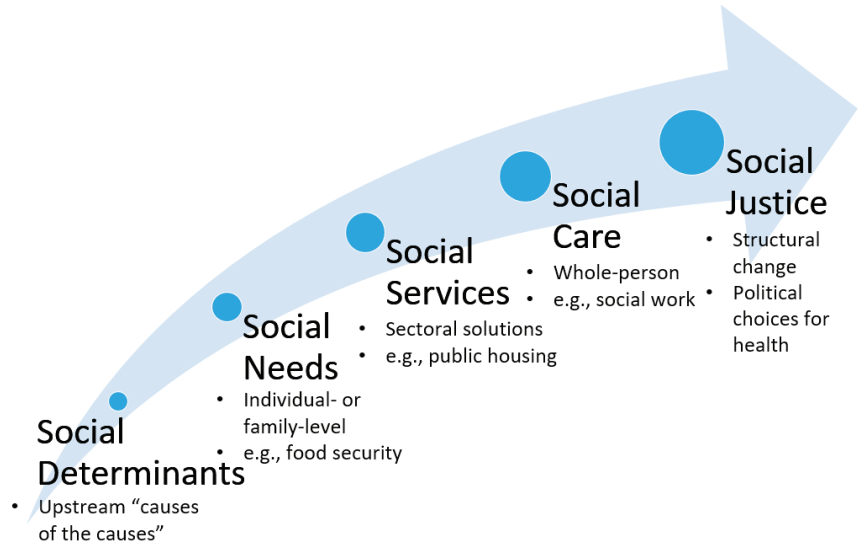

FIGURE 2-4 The arc of the social determinants of health universe is long, but it bends toward social justice.
SOURCE: Presented by Dave Chokshi, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs.

(Alley et al., 2016; Gottlieb et al., 2017a; Tipirneni et al., 2015)[4] has four key tenets: raise awareness among providers of their patients' social needs, provide assistance for patients, align services and accessibility, and advocate for improved services and supports for its patients. The key domains in which the organization is working to better serve its patients include housing stability and quality, food security, legal services, and income support. In the legal services domain, for example, New York City Health + Hospitals has established one of the largest medical–legal partnerships in the nation with the New York Legal Assistance Group to deal with a range of issues, including immigration, housing, employment, and other issues that can adversely affect health. Specific examples of what this partnership tackles include preventing eviction, creating Permanently Residing Under Color of Law status as a pathway to Medicaid eligibility, helping with Social Security disability appeals, handling a reasonable accommodation in the workplace, and processing visa or other applications for family members who want to serve as organ donors for a patient.

[4] Information available at https://innovation.cms.gov/initiatives/ahcm (accessed May 15, 2019).

This medical–legal partnership also provides a channel for advocacy and for addressing proposed changes in laws and regulations such as the proposed public charge rule that might exacerbate unmet social needs.

MOVING HEALTH CARE UPSTREAM IN MASSACHUSETTS

Monica Bharel noted that in addition to being commissioner of Massachusetts's Department of Public Health, she is a primary care physician who has spent more than 20 years trying to improve her patients' health from a medical perspective only to realize that their social needs and social determinants of health far outweighed the capacity of her efforts to help them achieve health. She then described the model she and her colleagues are following to address the social determinants of health, one that starts by placing a deliberate focus on social determinants and health disparities. The model calls for generating and using data, as well as making it available to researchers, the press, and the general public, to drive initiatives that target disparities and improve health outcomes. Health equity is embedded in everything her department does.

As an example of how this model is put into practice, Bharel described the Massachusetts Determination of Need (DoN) program.[5] DoN, also known in some states as a Certificate of Need, is a legal construct regulated by the Department of Public Health. It requires that investments made on improvements in the health care system must go through a determination of need and public health valuation. Massachusetts's regulations requires DoN applicants to set aside 5 percent of capital expenditures for addressing state-defined health priorities through community-based health initiatives that engage the community to address social determinants of health. The department's health priorities focus on violence, the social environment, housing, employment, education, and the built environment to tackle those areas that the state's mortality and morbidity data indicate are the highest areas of inequity: mental health and wellness, homelessness and housing stability, substance use disorder, and preventable chronic disease. The DoN program also requires applicants to include plans for addressing structural racism in their communities.

Bharel explained that Massachusetts has deliberately linked its DoN process into the community health improvement plans required every 3 years from all not-for-profit health systems to influence what goes into those plans. In fact, the Massachusetts Attorney General now requires each not-for-profit health system to report on how they are addressing her department's health priorities.

[5] Information available at https://www.mass.gov/determination-of-need-don (accessed May 15, 2019).

As an example of an early success, Bharel described Boston Medical Center's community health investments through a social impact fund to build affordable housing and provide a zero-interest loan to build a grocery store in a community in which food insecurity is common. Boston Medical Center has also put money toward an innovative community-empowering housing stability fund. More recently, all 13 of Boston's hospitals have come together to produce a unified community health needs assessment and community health improvement plan that stands to reduce duplication of efforts and waste of resources. Two other hospitals have also chosen to invest in the same project, enhancing the power of that project, said Bharel.

DISCUSSION

Session moderator Daniel Polsky began the discussion period by saying he heard clearly that the health sector, community, and regulatory environment can complement each other in efforts to address social needs and social determinants of health. His question to the panel, then, was: if the health sector investments that subsequent workshop sessions would tackle are to thrive and have a strong return on investment, what would they recommend the assistant secretary's office to focus on going forward?

Auerbach replied that he would make affordable housing a priority area given that evidence from multiple sources show that housing insecurity is the most common impediment to good health. He added that providing affordable housing will not be enough without providing wraparound components to help individuals who have a history of housing insecurity or chronic homelessness, for example, and to create safe, walkable neighborhoods and ensure healthy food is accessible to those living in affordable housing.

Bharel suggested creating mechanisms to help bring together the health system and community-based social services and to establish templates that would guide state efforts to better account for how community benefit funds are spent. Toward that end, Auerbach proposed creating a fund that CDC could use to provide a grant that each state and large city would use to create a social determinants unit headed by someone who can connect multiple stakeholders and hold them accountable for how they are spending community benefit funds. Chokshi agreed that creating partnerships will be critical for promoting collective action in a community. He also pointed out that the health care sector and other social service sectors, such as the criminal justice system, have a great deal of overlap in the people they serve, so it may be possible to pool resources from across sectors to address social needs and social determi-

nants of health. Auerbach suggested establishing a committee comprising leadership of every federal agency that has some connection with health, including the U.S. Department of Housing and Urban Development and the U.S. Department of Education.

Responding to a question from Marilyn Lynk of the Adventist HealthCare Center for Health Equity and Wellness, Bharel explained that the 5 percent set-aside for community health benefits is separate from any community benefit funds a health system might also be spending. Between 2015 and spring of 2019, that 5 percent added up to more than $143 million in obligations going to communities. She also explained that the Boston-wide community health assessment is a work in progress and that the participating hospitals are still figuring out how their efforts can be synergistic with one another. The 13 hospitals are not pooling their funds, though individual hospitals can decide to work together on a project when it meets both of their communities' health needs.

Alexandra King from the Community Transportation Association commented that she supported the idea of creating a federal office that would foster cross-sector collaborations and pointed out that other sectors are already doing this. The U.S. Department of Transportation, for example, has a coordinating council on access and mobility that includes representatives from multiple agencies. She then asked the panelists for recommendations on how her organization, which represents rural and small urban specialized public transit providers, could get a foothold in the health care sector. Chokshi replied that health care can be hard to break into and that this is something that needs to be fixed. He suggested pitching these types of services as a way to address imperatives under value-based payment, an argument that he said was particularly germane for transportation interventions. He also recommended approaching the population health or social determinants group in a health system, if one exists. Auerbach noted that CMS has released new guidelines that include the option of paying for transportation for non-medical visits, such as to go to the grocery store, as well as interventions to address other social needs.

Genevieve Kenny from the Urban Institute asked Bharel if her department was intending to identify opportunities, challenges, and potential effects of repurposing and dedicating funds in a more community-centric and forward-looking way. Bharel replied that assessment of impact is going to be challenging because the money is going out to the community, and she wondered if the roundtable might recommend increasing resources for assessment as a means of answering questions about ROI. Her department will be asking for annual reports on community health investments that include data and statistics, but because this is a statewide program, there will not be a control group within Massachusetts.

The final comment in this session came from Lawrence McNeely with the American Diabetes Association, who noted that bending the curve for type 2 diabetes, for example, will require taking action early in life, which means thinking about what happens in the family unit, both during pregnancy and in the early years of life. This is a collective action problem that will require long-term investments, and he wondered who will provide those investments. Chokshi acknowledged that securing long-term investments is tough and proposed looking for places where the incentives align to make those investments, develop an evidence base, and then drive change more generally.

3

Housing Interventions

Key Points Raised by Individual Speakers

- The more that housing investments by health care organizations are seen as an organizational imperative, the less important the narrow economic justification becomes. (Hacke)
- Health care systems do not need to work on housing interventions alone; rather, they should partner with the existing community development sector that works in the housing arena every day. (Hacke)
- Thinking more holistically about the kinds of assets (e.g., community benefit funds, endowments, cash reserves) that can be brought to bear makes health systems much more powerful as partners. (Hacke)
- Local government is a place where different sectors of service delivery, public policy, and funding tend to converge, offering the opportunity to draw out and recognize the interactions among these different sectors and to think more strategically about where to invest funds at the places where those sectors intersect. (Owen)
- When addressing housing needs, partnerships matter at the local, state, and federal levels. (Mingo)
- Policy can serve as a key lever to address housing affordability. (Choucair)

- Because health care in many ways straddles the private and not-for-profit sectors and because chief executive officers of health institutions have a certain gravitas associated with them, health system leadership has an unusually powerful voice in discussions that cross sectors or in advocacy campaigns. (Hacke)
- The federal government should create a more rigorous requirement around community benefit that emphasizes efforts addressing the social determinants of health and to allow Medicaid funding to go for housing in more direct ways that are not a function of individual waivers. (Hacke)
- The federal government should create data standards and regulations around data privacy that would make data sharing easier across health care systems and community organizations. (Owen)
- The federal government should change how it reimburses risk-bearing entities in a way that incorporates information about the social needs of different patient populations. (Owen)
- There is a limit to what the current economic self-interest of health care organizations can accomplish, and it is probably not enough to fix the root causes of the social determinants and social needs. (Owen)
- Health systems need to develop the ability to use the electronic health record to predict who will need what interventions and be proactive about addressing their needs before they reach the point of having a housing crisis or food crisis. (Choucair)

The workshop's second panel featured short presentations by four panelists who spoke about different housing interventions to address patients' non-medical, health-related social needs. The panelists were Robin Hacke, Executive Director of the Center for Community Investment; Ross Owen, Health Strategy Director at the Hennepin County, Minnesota, Accountable Care Organization (ACO); Angela Mingo, Director of Community Relations at Nationwide Children's Hospital; and Bechara Choucair, Senior Vice President and Chief Community Health Officer at Kaiser Permanente. A discussion and question-and-answer session, moderated by Maurice Jones, President and Chief Executive Officer of Local Initiatives Support Corporation, followed the presentations.

ACCELERATING INVESTMENTS FOR HEALTHY COMMUNITIES

The Center for Community Investment, explained Robin Hacke, is in the business of helping communities unlock the capital they need to achieve their priorities for community development, which in many places is stable, healthy, and affordable homes for everyone in the community. She noted that 3 years ago, the Robert Wood Johnson Foundation asked the Center what it would take to have hospitals and health systems invest in increasing the stock of affordable housing. The resulting initiative, Accelerating Investments for Healthy Communities, is an intensive, 2-year initiative designed to help teams comprising health institutions (representing a mix of faith-based, safety net, academic, and children's hospitals) and their community partners deploy assets to address social determinants of health with a primary emphasis on affordable housing as the basis for investing in community health.

There are, in fact, a number of health systems that have committed resources to develop and preserve affordable housing in their communities, even though they are not required or even incentivized to do so (see Table 3-1). The idea behind the Accelerating Investments for Healthy Communities initiative, said Hacke, is to see what would happen if the leaders of these health systems could expand that work and light a path for other institutions to follow. When her team examined the motivations

TABLE 3-1 Health Care Systems Committing Resources to Develop Affordable Housing and Who Are Participating in the Accelerating Investments for Healthy Communities Initiative

Participating Institution	Focus Region
Bon Secours Mercy Health System	Baltimore, MD Cincinnati, OH
Dignity Health	San Bernardino, CA
Kaiser Permanente	Purple Line Corridor, Prince George's/Montgomery Counties, MD
Nationwide Children's Hospital	Columbus, OH
UPMC	Pittsburgh, PA

NOTE: UPMC = University of Pittsburgh Medical Center.
SOURCES: Presented by Robin Hacke, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Created by the Center for Community Investment.

of these health systems to invest upstream, they found that there were many, often within the same institution. Motivations included

- Investing upstream was part of the institution's mission to foster health communities.
- Getting involved in upstream initiatives was a way of boosting the health system's reputation in the community.
- It improved the systems' competitiveness.
- It afforded an opportunity to gain experience with strategies that might reduce costs and improve outcomes as preparation for payment shifts from volume to value.
- Such investments might generate a positive return on investment (ROI).
- Investing upstream helped meet requirements and avoid penalties for readmissions.

She noted that the more such investments are viewed as an institutional imperative, the less important the narrow economic justification becomes.

What she has seen in this program is that health systems invest in a range of housing types that includes emergency shelters, transitional and supportive housing, public housing, subsidized and unsubsidized affordable housing, market-rate rental housing, and owned homes. Those that focus more on narrower ROI considerations tend to invest in emergency shelters, transitional housing, and supportive housing. What she is seeing among the leaders in this program is an interest in a broader set of affordable housing investments, including family housing; affordable housing for their own workforces, especially for the people who are at the lower end of the income spectrum; and the continuum of housing options that allows people to move through the spectrum as their needs change (see Figure 3-1). She noted that health systems do not need to do this work by themselves but should partner with the existing community development sector that works in the housing arena every day.

Health systems, said Hacke, should think broadly about the assets they can bring to the table. Community benefit dollars, she said, are like magic because they can be used for a wide range of purposes, but many institutions these days also have land that may not be necessary anymore for the health system's purposes. They may also have pensions, foundation endowments, and insurance reserves with which they can make investments. "Thinking more holistically about the kinds of assets that can be brought to bear makes health systems much more powerful as a partner," said Hacke.

What she has seen so far is that there are two levels of transformation that have to happen for this work to go forward. One occurs inside

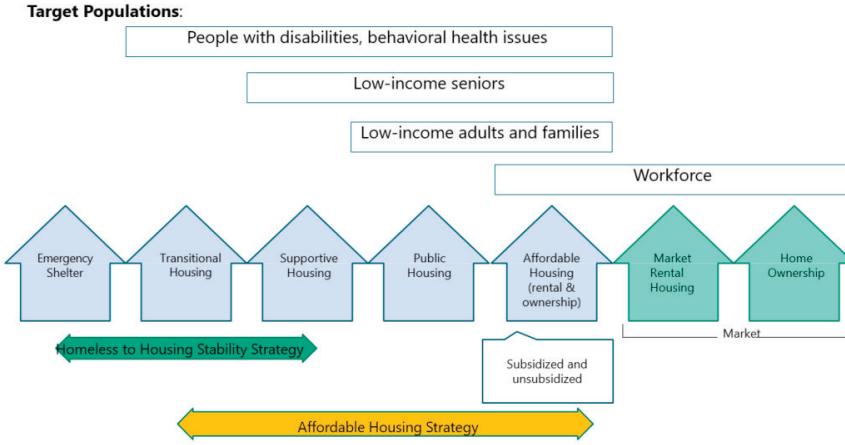

FIGURE 3-1 Health systems invest in a range of housing types.
SOURCES: Presented by Robin Hacke, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Created by the Center for Community Investment from content by Marjan Eggermont's Housing Continuum model. Information available at http://sixeightfour.blogspot.com/2009/03/housing-continuum.html (accessed July 30, 2019).

the health system when a leader steps up and says this is something that is part of the health system's business, and the other occurs when the health system reaches out to the community to find a partner than can articulate the community's vision for what it needs as a means of avoiding unintended consequences. Hacke noted the importance of involving financial and real estate experts who can bring ideas about how to leverage land and structure leases so that buildings are financially stable. Also important, she said, is to not think in terms of one investment of 100 units but in terms of a pipeline of investments the health system can help develop through partnerships. Finally, she said, health systems have a role to play as a convener of a range of partners to meet regularly and build momentum.

MEDICAID ACCOUNTABLE CARE ORGANIZATION

Hennepin Health, explained Ross Owen, is an ACO focused on caring for complex Medicaid enrollees in Minnesota's largest county, which for the past 30 years has functioned as a department of county government with its own Medicaid health plan operating on a capitated reimbursement arrangement with the state Medicaid agency. Hennepin Health's

ACO is anchored by a county-affiliated teaching hospital and level 1 trauma center, and it includes a system of primary care clinics and federally qualified health centers that serve anchoring roles in the neighborhoods they serve. Hennepin Health's operating model includes linkages with county human services and the public health department, which runs a system of clinics to provide health care for the homeless. Though historically, health care, human services, and public health were not good at working together, Owen said Hennepin Health linked them together with a governance model that includes a shared electronic health record (EHR), collaborative decision making, integration of data and services, a risk-sharing funding model, and an infrastructure to measure impact.

Most of those served by Hennepin Health were brought into the health system through Medicaid expansion, said Owen, so the services the ACO offers reflect the needs of that historically uninsured or underinsured population of adults. He noted that as a health system, Hennepin Health has what he characterized as an interesting cross-sector view of how these new beneficiaries not only present clinically with social needs but are touching other part of the system that are intended to address those social needs (see Figure 3-2). As a result, there were many largely disconnected funding streams converging on the same high-risk, high-cost, high-need population.

One thing Owen said that the Hennepin Health team has learned in working with the Medicaid expansion population is that the interface of

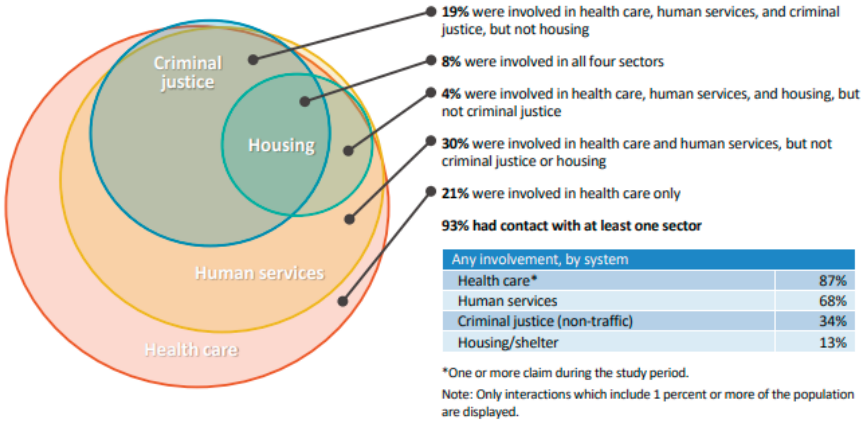

FIGURE 3-2 Cross-sector utilization by a Medicaid expansion population.
SOURCES: Presented by Ross Owen, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Reproduced with permission from the Center for Health Care Strategies, Inc.; Bodurtha et al., 2017.

health care with other parts of the system looks different from the perspective of those other parts. As an example, he said that when Medicaid expansion rolled out in Minnesota, it was thought of by many as adding coverage for a small niche populations. However, when Owen and his colleagues looked at insurance coverage from the perspective of county's homeless shelter system, they learned that over half of the emergency shelter stays in the community were by individuals who were suddenly covered by Medicaid. "From the perspective of the housing sector, that coverage became very important, and the set of tools and services made possible by that coverage really changed things overnight in terms of resources and the ability to serve that population," said Owen.

With the obvious overlap of housing instability and health care needs, Hennepin Health has rolled out a variety of interventions intended to connect housing and health care and reduce acute care costs. One intervention involved hiring county-employed social workers and deploying them into the medical system to provide what Hennepin Health calls social service navigation. These social services navigators, for example, help discharged patients transition into stable housing for which they may already be eligible. Hennepin Health has also developed a data mining operation that uses location proxies to identify homelessness from information in the EHR.

In his concluding remarks, Owen encouraged the workshop participants to think about local government as one place where different sectors of service delivery, public policy, and funding tend to converge. Doing so, he said, offers the opportunity to draw out and recognize the interactions among these different sectors and to think more strategically about where to invest funds at the places where those sectors intersect.

HEALTHY NEIGHBORHOODS HEALTHY FAMILIES

As an urban planner working for a health care organization, Angela Mingo is excited to hear discussions about how the built environment can improve health and to see the housing and health care sectors working together to find solutions that benefit community and individual health. In that regard, she noted that Nationwide Children's Hospital (NCH) now thinks of the neighborhood as its patient and is making investments in affordable housing as a means of improving the health of the neighborhoods it serves, and by extension, the families that live in those neighborhoods.

Her organization's Healthy Neighborhoods Healthy Families initiative is taking a five-pronged approach to address the social determinants of health in the neighborhoods immediately adjacent to its main campus. In partnership with local stakeholders, Healthy Neighborhoods Healthy Families is looking for ways to improve health and wellness, education, and workforce and economic development; develop more affordable

housing options; and create safe and accessible neighborhoods. She noted, for example, that if a child lives in an unsafe neighborhood and cannot play and exercise outside, it is likely his or her health will be affected adversely. As part of its education initiative, the program encourages its employees to serve as mentors in the neighborhood. "In the case of an NCH mentor, when discussing health and wellness with their elementary school students, the discussion pivoted to the safety plan at home and how they plan for gun violence and things of that nature versus not being able to go outside and play because it simply is not safe," said Mingo.

Healthy Neighborhoods Healthy Families has partnered with a faith-based community development corporation involved in affordable housing to revitalize the homes of current owners, eliminate blighted properties in the neighborhood, and increase home ownership. Though the initial stretch goal was to improve 100 properties, the program has been able to improve more than 300 homes over the past decade through a combination of improving vacant and blighted residential properties, financing infill housing, and expanding housing opportunities overall for residents in the neighborhoods. So far, NCH has invested more than $7 million in affordable housing and leveraged more than $25 million from other sources. Mingo explained that when the program started, it focused on home ownership but quickly realized that affordable housing was in such demand in its neighborhoods that it needed to also work to increase the stock of affordable rental housing.

Mingo noted that Hacke's Center for Community Investment has been a key player in helping NCH accelerate its work and identify novel approaches to financing affordable housing. One approach that has proven successful uses what Mingo called a capital stack structure that combines several types of debt with varying levels of risk into a $15 million pool for investing in affordable rental properties, with NCH putting aside $1.5 million as a loan loss reserve (see Figure 3-3). Thanks to this fund, Healthy Neighborhoods Healthy Families should be able to improve 170 additional rental properties in a short period of time, said Mingo.

One thing she and her colleagues have learned through this work is that anchor institutions such as hers cannot do this work alone. "We have to identify the partners within our communities who are already in this space and who may need an opportunity to really accelerate their work by leveraging bigger partnerships," said Mingo. She also noted that her large nonprofit organization has learned an incredible amount about investing in the community from the small nonprofit community development corporation with which it has partnered. Another lesson learned from Healthy Neighborhoods Healthy Families is that partnerships matter not just at the local level, but at the state and federal levels, too.

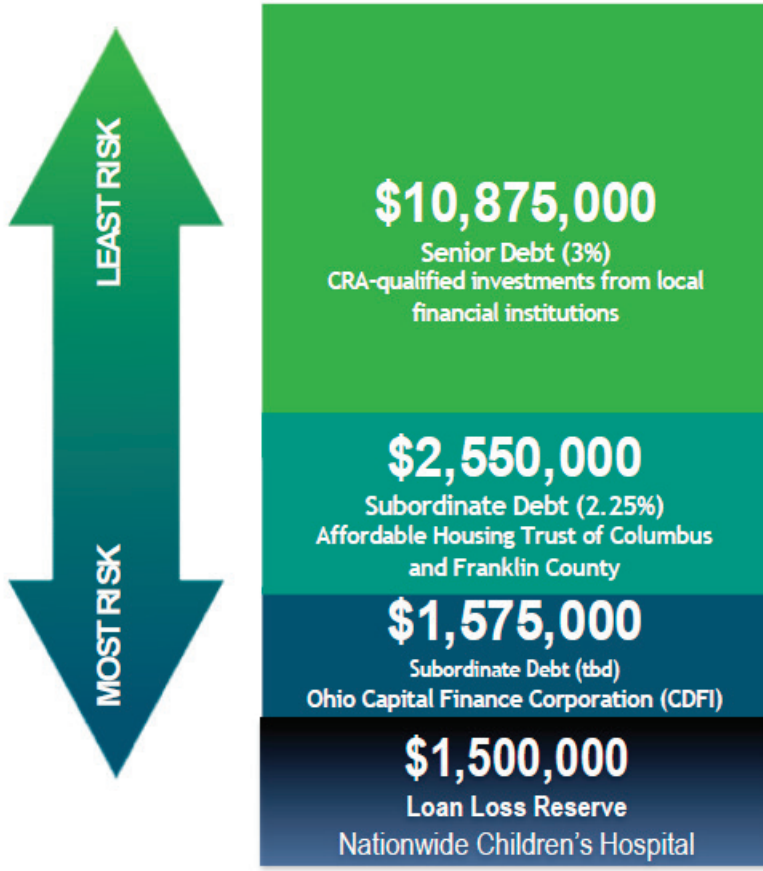

FIGURE 3-3 A capital stack structure for improving affordable rental properties. NOTE: CDFI = Community Development Financial Institution; CRA = Community Reinvestment Act.
SOURCES: Presented by Angela Mingo, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Created by the Center for Community Investment with content provided by Nationwide Children's Hospital.

SOLVING AMERICA'S HOUSING CRISIS REQUIRES ALL HANDS ON DECK

One lesson Kaiser Permanente, the largest nonprofit integrated health system in the country, has learned over the years is that health care services are not going to be enough to optimize the health of its 12.4 million members because health happens in the communities in which those

members live, learn, play, and work. "For us to be able to optimize their health, knowing that they stay with us for many years, it is important that we think about their needs in those communities," said Bechara Choucair. Kaiser Permanente's approach to thinking about its members' health, he added, is to think about their social health in the same integrated manner that it thinks about physical and mental health. This involves looking at each individual's housing and transportation needs, food insecurity, and social isolation, but it also looks at the conditions that led to the development of those social needs.

Regarding the nation's affordable housing crisis, Choucair pointed out that as rental costs outpace income growth, many of its members start living in substandard housing, which can mean exposures to lead and other environmental pollutants and an increase in health care costs. He cited figures from the National Center for Healthy Housing showing that unsafe and unhealthy housing costs more than $300 billion annually. The nation's housing crisis is also leading to a significant increase in the homeless population and an accompanying decrease in life expectancy for those affected individuals. "We know that the mortality rate of somebody on the street is three to four times higher than that of somebody who is housed," said Choucair. "We know that if you are homeless, your life expectancy is about 27 years lower than it is for those who are housed." In terms of controlling health care costs, individuals who are homeless and admitted to the hospital stay 2 to 3 days longer than those who are housed. Their chances of being readmitted after discharge are 50 percent higher.

Policy can serve as a key lever to address housing affordability, said Choucair. As a partner in the CityHealth project that John Auerbach discussed in the previous panel session, Kaiser Permanente identified nine policies that improve health, including one policy on inclusionary zoning. Kaiser Permanente is now working with the 40 largest cities in the country to make sure those cities have adopted policies that call for developers to dedicate a certain percentage of the units they build to be affordable, whether for low- or moderate-income individuals. It is also a national partner with Mayors & CEOs for U.S. Housing Investment, a bipartisan coalition of 24 mayors across the country that is working with the federal government to ensure there is the continued ability to invest in affordable housing stocks.

To power its non-medical initiatives in the community, Kaiser Permanente has committed $200 million in impact investment funds. One of its first investments is the Housing for Health Fund, which provides equity financing to help mission-oriented developers in the San Francisco Bay area purchase buildings that are at risk of becoming unaffordable and help the people that live in those buildings to continue to do so. This

fund's first investment was in a multiunit building in Oakland that will now maintain affordability for years to come, said Choucair. The second fund, RxHome Fund, offers low interest rate loans to every Kaiser Permanente community with the sole purpose of preserving and expanding housing affordability in those communities.

Kaiser Permanente is carrying out another non-medical initiative to address the homelessness crisis in partnership with Community Solutions. This community-based organization works with 70 communities across the nation to use data to identify veterans and others who are chronically homeless and get those individuals into stable housing. Since 2015, said Choucair, this program has helped house more than 100,000 people in those 70 communities and helped 10 of those communities eliminate chronic homelessness. Kaiser Permanente is helping expand to 15 new communities in which Kaiser Permanente has members. Another project, conducted in Oakland, California, worked with community partners to identify by name the 515 people in Oakland who are 50 and older, have one or more chronic medical problem, and are homeless. Kaiser Permanente is now working with a group of community-based organizations to get all 515 of these individuals off the street and has made significant progress over a 4-month period to do just that.

DISCUSSION

Mikelle Moore from Intermountain Healthcare asked the panelists for ideas on how health care systems can act as a convener of other sectors. Hacke replied that because health care in many ways straddles the private and not-for-profit sectors and because chief executive officers of health institutions have a certain gravitas associated with them, she has found that health system leadership has an unusually powerful voice in discussions that cross sectors or in advocacy campaigns. Owen agreed with and added that it is important to bring together the leadership of multiple health systems to avoid the risk of them trying to separately engage the same nonprofit and government partners. It is also important, he said, for health systems to be willing to share data and knowledge equally with the other health systems in a partnership. "If we could collaborate instead of compete, we could have a model that is easier to engage with and would send more consistent signals at the community level as to where the health care system wants to engage with the community," said Owen.

Mingo commented that bringing together government and other nonprofit organizations enables the partners to find their common goals and leverage the investments each partner brings to the table to make bigger investments than would otherwise have been possible. She noted that NCH is the primary health care organization involved in the housing

investment program she discussed, and that it has been able to engage the leadership of various financial institutions who are looking at opportunities for high-impact projects. Choucair added that the Bay Area Council, a coalition of more than 300 of the largest business in the region, issued a report around homelessness that is helping to mobilize businesses and community organizations to get involved in partnerships to address the housing crisis and commit hundreds of millions of dollars to this effort.

Auerbach asked the panelists if there was something that the federal government could do to help scale successful local activities to other parts of the country. Hacke suggested the federal government should create a more rigorous requirement around community benefit that emphasizes efforts addressing the social determinants of health and to allow Medicaid funding to go for housing in more direct ways that are not a function of individual waivers. Mingo noted that what she is seeing is that many of the health systems investing in housing are mission driven. To encourage other health care systems to join in, the federal government might try to identify incentives that apply more broadly across the health care enterprise. ACOs, she pointed out, are at risk for their populations from birth until they mature into adulthood, a motivating factor for investing in the social determinants.

Owen said he would like to see the federal government create data standards and regulations around data privacy that would make data sharing easier across health care systems and community organizations. His second proposal was to change how the federal government reimburses risk-bearing entities in a way that incorporates information about the social needs of different patient populations. "If we did not spend a dollar more but recognized that social complexity is a predictor of health care costs, it could open more opportunities for health care organizations to be a resource and make this work possible," said Owen.

Choucair had a list of five actions the federal government could take:

1. Make sure affordable housing is an integral part of any potential infrastructure plan.
2. Maximize funding for existing programs that work, such as Section 9 housing vouchers and the U.S. Department of Housing and Urban Development's (HUD's) Veterans Affairs Supportive Housing program.
3. Fund replications of successful programs, and tie them to some of the U.S. Department of Health and Human Services' programs that support people with substance use disorders or mental health issues.
4. Create new competitive HUD funding modeled after the U.S. Department of Transportation's Transportation Investment Gen-

erating Economic Recovery grants that push for innovation and out-of-the-box thinking on affordable housing.

5. Create a housing stabilization fund that would provide one-time, short-term emergency housing assistance for people, so they do not end up on the street.

Katherine Berliner from the Center for Medicare & Medicaid Innovation asked the panelists to discuss one barrier each of their organizations has overcome. Hacke replied that this is a space where the perfect is the enemy of the good. "What we are learning is that if you get started in a way that authentically values community voice and you reach out to partners in an effort to do things together rather than alone, you will hear what the right answer is, and that right answer is different from place to place," said Hacke. In her opinion, getting to the right answer is more about an approach and mindset than about any specific best practice. "The advice we are hearing is to say you want to help, then listen, and do what you are told," she said.

Owen responded that it is easiest to gain both political and organizational momentum in these kinds of efforts by starting with obvious low-hanging fruit that will reduce health care costs in the short term. It is important to recognize, though, that there is a limit to what economic self-interest can accomplish, and it is probably not enough to fix the root causes of the social determinants and social needs.

Responding to a question about the degree that these interventions are replicable in a value-based world, Hacke said the problem is not so much that the solutions are not known, but that the nation and health care systems are not implementing them. Choucair countered that for an integrated health system such as Kaiser Permanente, value-based care is baked into the organization's DNA. "For me, that puts the work we do at the core of our business strategy as opposed to this nice thing we do on the side," said Choucair, who added this is why Kaiser Permanente has a chief community health officer as well as a chief medical officer.

Joanne Lynn from Altarum noted that a recent paper in the journal *Health Affairs* projected that a significant proportion of Americans age 75 and older will not be able to afford housing in another decade. Choucair replied that he was so disturbed by that projection that he sent it to every member of Kaiser Permanente's national executive team and every regional president and executive medical directors. What he would like to see developed is the ability to use the EHR to predict who will need what interventions and be proactive about addressing their needs before they reach the point of having a housing crisis or food crisis, for example.

4

Interventions Addressing Food Insecurity

Key Points Raised by Individual Speakers

- Food insecurity is one of the most impactful social determinants of health on health-related quality of life. (Renda)
- Health care expenditures are higher for individuals experiencing food insecurity compared to those who are not. (Berkowitz)
- Look at return on investment from the broad perspective of health care dollars saved, reduced health care utilization, patient-reported, health-related quality of life, and quality metrics associated with disease control, among other aspects, to understand the full impact of interventions to address food insecurity. (Berkowitz)
- There is a great deal of shame involved in asking for help around food, but when a doctor tells a patient to get healthy food from a food pantry, it proves to be an effective way to get someone to walk through the food pantry door. (Leone)
- The Supplemental Nutrition Assistance Program has good evidence that it works to reduce food insecurity and has multiplier effects in the community. (Berkowitz)

The workshop's third panel featured short presentations by four panelists who spoke about different interventions designed to address food insecurity. The panelists were Seth A. Berkowitz, Assistant Professor

of Medicine in the Division of General Medicine and Clinical Epidemiology at the University of North Carolina at Chapel Hill School of Medicine; Allison Hess, Vice President for Health and Wellness at Geisinger Health; Andrew Renda, Associate Vice President of Population Health at Humana; and Kate Leone, Chief Government Relations Officer at Feeding America. A discussion and question-and-answer session, moderated by Karen DeSalvo, Professor of Medicine at The University of Texas at Austin Dell Medical School and co-convener of the National Alliance to Impact the Social Determinants of Health, followed the presentations.

FOOD INSECURITY AND HEALTH: CONSEQUENCES AND INTERVENTIONS

Food insecurity worsens health and is associated with increased incidence of diabetes, heart disease, high blood pressure, obesity, chronic kidney disease, and osteoporosis, said Seth A. Berkowitz as an explanation for why it is so important to address food insecurity. In addition, food insecurity can make disease management more difficult. For example, an individual undergoing cancer chemotherapy is not likely to recover as well and get the full benefit from the treatment without adequate nutrition. Moreover, the association between food insecurity and poor health often leads to higher health care utilization and higher health care costs, Berkowitz added. In fact, a study he and his colleagues conducted found that health care expenditures averaged $1,800 per year more for people with food insecurity compared to those who can access adequate nutrition (Berkowitz et al., 2018). This difference is often driven by higher inpatient admissions and higher emergency department (ED) utilization. "For these reasons, food insecurity has been a factor people have wanted to look at in programs to reduce adverse health care utilization," he said.

While the effect of food insecurity on health is clear, how best to intervene is not, said Berkowitz. This statement was not meant to discount the numerous efforts to address hunger, but to point out that it has only been during the past 5 years or so that researchers have been conducting well-designed and rigorous studies to link food insecurity interventions with health outcomes. The evidence base, however, is growing with the publication of results from three randomized trials, each of which found important effects of diet quality on some patient-reported outcomes (Berkowitz et al., 2019; Hummel et al., 2018; Seligman et al., 2018). Ongoing studies, including one he is conducting, are examining how diet quality affects a variety of outcomes, including quality metrics, health care utilization, and cost.

The results from these and other studies are generating excitement around addressing food insecurity as a means of improving health out-

comes, but Berkowitz cautioned that it will take time to build the evidence base. He said,

> We want to avoid hype and move from thinking about whether we should address [food insecurity] to what is the best way to address it, and that inevitably means we will find some ways that do not work so well on our way to finding other ways that do work well. I think we need to be prepared to be in this for the long haul and not give up the first time we start seeing the things that are not panning out exactly as expected or do not live up to inflated expectations, but realize that this is an evidence base that that is worth growing.

To Berkowitz, the goal should be to understand all aspects of return on investment (ROI), both in terms of health care dollars and health care utilization and regarding other outcomes such as patient-reported, health-related quality of life or quality metrics associated with disease control. Looking at the ROI from a broader perspective, he noted in closing, is necessary to understand the full effect of interventions to address food insecurity.

A NATIONAL VISION TO IMPROVE DIABETES HEALTH OUTCOMES USING FOOD AS MEDICINE

It is a fact of life today that many individuals do not earn enough to cover basic household expenses, said Allison Hess. Data from Feeding America show that 66 percent of its clients have had to choose between paying for medicine and buying food (Feeding America, 2019). "If you look at the data, there are many times when our patients are deciding whether they should eat or treat," she said, noting that this is becoming increasingly common in some rural populations that do not have as many social services available as do urban populations.

Looking across clinical outcomes, Geisinger Health recognized that the extensive and comprehensive clinical work on improving type 2 diabetes management was not as successful as expected largely because patients were unable to consistently access healthy food for their very diet-responsive condition. Working with the Central Pennsylvania Food Bank, Hess and her colleagues established the Fresh Food Farmacy program that treats prescriptive food as medicine to treat type 2 diabetes (Feinberg et al., 2018; Hess et al., 2019). Reiterating comments from other speakers regarding the importance of working with community-based organizations, Hess explained that as a health care organization, Geisinger had limited knowledge about running a food pantry, which is why the collaboration with the Central Pennsylvania Food Bank was so important. This program is a great example of why strong collaboration between health care and social care is so important.

The Fresh Food Farmacy model has several key elements, said Hess. Identifying individuals who might be experiencing food insecurity is the first element, and Geisinger Health does this by embedding two questions about food insecurity in its electronic health record and asking them of every patient at every visit. The answers to those questions are then linked with clinical data to find those clients who have uncontrolled type 2 diabetes and who live in an area with one of its participating food banks. "We chose to stand up those Fresh Food Farmacies in geographies within our footprints that had high rates of food insecurity and high prevalence of uncontrolled type 2 diabetes," she explained. These facilities are large—the most recent covers 5,000 square feet—and operate on a self-serve model much like shopping in a regular grocery store. Clients have options on which items to take home based on recipes and education the program provides.

Each week, clients receive 10 meals for themselves and their entire household. Hess noted the importance of providing a large majority of the food a patient needs given that type 2 diabetes is a diet-responsive condition. She also emphasized how critical it is to provide education and clinical support, as well as transportation. As an example of a typical outcome, she described how one patient named Rita, a 55-year-old married grandmother raising her three grandchildren, lowered her hemoglobin A1C from 12.8 to 5.4, lost 46 pounds, and reduced her low-density lipoprotein (LDL) cholesterol reading from 209 to 47 and triglyceride reading from 312 to a healthy 76. "Based on existing research that demonstrates an ROI of $8,000 to $12,000 per every one-point reduction [in A1C], it is easy to recognize that providing the food for this patient was definitely worth the long-term clinical and financial benefits," said Hess.

In terms of clinical measures, Geisinger clients participating in the program are averaging a two-point reduction in A1C values and a 31.3 percent improvement in glucose measurements, in addition to achieving a 15.8 percent reduction in cholesterol levels, a 17 percent reduction in LDL levels, and a 24.3 percent reduction in serum triglycerides. All told, medical expenses fell between $16,000 and $24,000 per client. In addition, said Hess, overall compliance rates for adult prevention and diabetes quality measures rose significantly. Annual eye exams, for example, increased by 16 percent, annual foot exams rose by 24 percent, and mammograms increased by more than 7 percent, for patients enrolled in the program. She noted, too, that Geisinger is seeing a 74 percent difference in admission rates between its enrolled and nonenrolled client population, as well as a 27 percent difference in ED visits and an increase in visits to primary care physicians. Geisinger is now expanding the program to two additional cities.

A BOLD GOAL: IMPROVING HEALTH BY ADDRESSING FOOD INSECURITY

In 2014, Humana's chief executive officer declared what has become known within the organization as the Bold Goal[1]: improve the health of the communities it serves by 20 percent using the Centers for Disease Control and Prevention's Health Days tool as the metric.[2] In some preliminary research, Andrew Renda and his colleagues combined Humana's Healthy Days data with the County Health Rankings Report from the Robert Wood Johnson Foundation and looked to identify the social determinants that would have the biggest positive effect on health-related quality of life (Cordier et al., 2018). Loneliness was first, he said, and food insecurity was second (see Figure 4-1). Humana now has research and intervention pipelines aimed at addressing both of these social determinants.

To test primary care physician clinics as a primary channel to address food insecurity, Renda and his colleagues conducted a pilot with over 500 clients and found that physicians could successfully screen their patients for food insecurity during office visits and then refer them to food resources—all without disrupting practice flow. They then developed a physician toolkit to educate them on how food insecurity affects health,[3] why it is important to screen in a clinic setting, and how to do it using the U.S. Department of Agriculture (USDA) two-question Hunger Vital Signs tool. In 2017, Humana launched a randomized controlled trial in collaboration with Feeding South Florida, with 1,000 clients, of a high-touch intervention involving screening, mobile food distributions, connecting patients to resources, enrolling them in the Supplemental Nutrition Assistance Program (SNAP), and providing case management. This ongoing trial will look at outcomes in health-related quality of life, clinical outcomes, and reductions in utilization and cost.

Renda and his colleagues are also using advanced analytics to develop a predictive model for food insecurity that it can run against Humana's entire Medicare and Medicaid populations. The idea here is to proactively identify those members who are likely to be food insecure and reach out to them with education, services, and connections to internal and external resources. They have also integrated social determinants of health screening into many of Humana's clinical operating models, resulting in more than 500,000 Humana members being screened (and if positive, referred

[1] Information available at https://populationhealth.humana.com (accessed May 28, 2019).

[2] Information available at https://www.cdc.gov/hrqol/methods.htm (accessed May 28, 2019).

[3] Information available at https://populationhealth.humana.com/wp-content/themes/humana/docs/Food-Insecurity-Toolkit.pdf (accessed May 28, 2019).

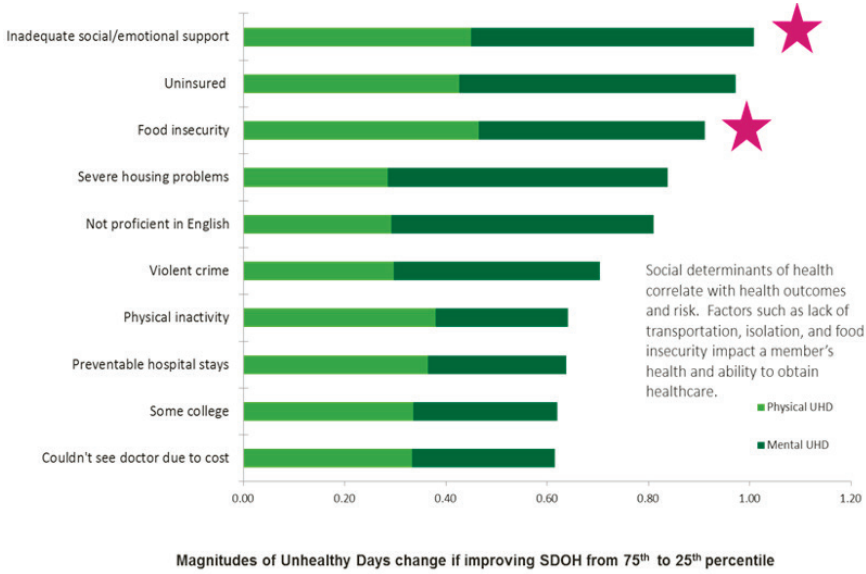

FIGURE 4-1 How addressing the social determinants of health can improve health.
NOTE: SDOH = social determinants of health; UHD = unhealthy days.
SOURCES: Presented by Andrew Renda, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Figure adapted from Cordier et al., 2018.

to resources) for food insecurity, loneliness, and other social determinants of health in 2018. Their 2019 goal is 1 million screenings and eventually to create a health ecosystem that assesses all patients for social determinants of health needs alongside other clinical gaps in care.

Humana is now working with the National Quality Forum to develop food insecurity quality measures. Renda and his colleagues have also developed a tool called ZoomIn for creating hyperlocal heat maps for social determinants that uses publicly available data sets to identify food deserts and overlay them with community resources.[4] For example, plugging an individual's address into the tool reveals if they live in a food desert and identifies community resources that individuals can access to line up transportation to the nearest grocery store or food bank.

[4] Information available at https://zoomin.humana.com (accessed May 28, 2019).

FEEDING AMERICA: INTERVENTIONS ADDRESSING FOOD INSECURITY

Feeding America, explained Kate Leone, is a nationwide network of 200 member food banks serving more than 60,000 food pantries and meal programs. All told, Feeding America's network covers every congressional district and serves 46 million Americans annually. Health, she said, is a priority concern for her organization's clients, with 58 percent of the households it serves having a member with high blood pressure and 33 percent having a member with diabetes. Some 47 percent of Feeding America's clients report they are in fair or poor health, 29 percent have no health insurance, and 55 percent have some medical debt.

Feeding America is taking two approaches to addressing the food insecurity affecting its clients' health. The first approach is to address it when people show up at a food distribution site and provide them with healthier food and information on nutrition and health. This approach is expensive, said Leone, because it involves providing fresh and perishable food. Nonetheless, Feeding America is ramping up its efforts to provide more healthy offerings and get clients to take that food and consume it. It is also hosting health screenings and helping with benefits enrollment. As an aside, Leone mentioned that some of her organization's food banks in Ohio have engaged local hospital executives to speak with their members of Congress and advocate for SNAP, which she noted provides nine meals for every meal provided by food banks.

The second approach, and perhaps more effective one, addresses food insecurity at health care sites. "There is a great deal of shame involved in asking for help around food, but when your doctor tells you to go get healthy food from a food pantry, it proves to be a very effective way to get someone to walk through [the food pantry] door," said Leone. "The health care sector can provide an important motivation for people to get the help they need."

Referring to the joint work Feeding America is doing with Geisinger and the Central Pennsylvania Food Bank, Leone said the key to that effort's success is getting patients connected with the resources they need. "There is a transportation issue, a follow-up issue, and an adherence issue," she said in closing, "but to the extent that the health care sector and charitable food network work together, we have been able to increase people's access to food and improve their quality of life."

DISCUSSION

Lisa Patrick, a physician and epidemiologist from the Washington, DC, area who lives in a food desert, asked the panelists if they were also working on food literacy and on changing behavior. Hess replied that

food literacy is an incredibly important piece of Geisinger's program, as is providing recipes to help clients use healthy food with which they may not be familiar and helping clients make what can be a challenging lifestyle change. One unexpected benefit of standing up one of its Fresh Food Farmacies in a food desert is that it raises the quality of food delivered to other food pantries in those neighborhoods. Leone added that a familiar criticism of food banks—and the food industry in general—is that they do not do enough to encourage people to make the right choices; Feeding America has included a focus in its strategic plan on increasing access to and consumption of produce and protein.

Renda noted that nutrition literacy is multifactorial. Basic education on how to eat healthy is one component, but so is how to shop and eat healthy on a budget. It is also important to consider culture and ethnicity when thinking about nutrition literacy. Berkowitz added that all good food insecurity interventions have an educational component, and he agreed with Renda that affordability must be addressed. He then pointed out that there is a significant body of literature around interventions designed to improve the healthfulness of offerings at corner grocery stores, and at least two cities—Philadelphia and San Francisco—have local policy initiatives that enable corner stores to upgrade their facilities and add refrigeration to store fresh fruits and vegetables.

Daphne Delgado from Trust for America's Health asked the panelists for policy recommendations that would address food insecurity. Berkowitz replied that expanding SNAP would be the place to start given there is good evidence that it works and is efficient in terms of the dollars put into the program that reach eligible individuals and their multiplier effects in the community. Hess agreed, noting that getting clients enrolled in SNAP and optimizing the benefit is one of the first steps in Geisinger's program. The long-term goal to have food become a covered benefit by insurers, as it costs $1,200 annually to feed a family of four in the Fresh Food Farmacy program and diabetes medication can cost $1,000–$1,500 per month. Renda also concurred that SNAP is the place to start, and beyond that, he proposed expanding benefits in Medicare and Medicaid to include food and food delivery. Leone also agreed that increasing the SNAP benefit and reducing barriers to enrollment would be the top priority given how it is not pegged to a realistic evaluation of what healthy food truly costs. She noted that enrollees in Medicare Savings Programs are more likely to be food insecure, so perhaps there should be some mechanism to link those enrollees to other benefits.

Another area for policy change, said Leone, would be to reduce the barriers associated with the Health Insurance Portability and Accountability Act (HIPAA) that impede coordination between health organizations and the charitable food sector. Karen DeSalvo added that it is possible

to address the data-sharing barrier because HIPAA allows patients to share their data at their discretion. She noted that in North Carolina and Louisiana, enrollment in Medicaid includes a check to see if an individual is eligible for other social care programs, including SNAP. DeSalvo also pointed out that USDA announced a pilot program that will allow online retailers to take SNAP benefits so that food can be delivered to SNAP beneficiaries. Larry McNeely, a workshop participant, noted that the Special Supplemental Nutrition Program for Women, Infants, and Children, like SNAP, works to provide nutritional support for children.

Joanne Lynn commented how grateful she is for research that fuels advocacy for a better food supply but said it should be unacceptable to have a study arm that does not provide food. There should also be a strategy, she said, that makes it unacceptable for people to have to join a waiting list to get food. Leone said Feeding America's vision is to make hunger in America unacceptable, but part of the problem is that hunger is a largely invisible issue. Renda, agreeing with both Lynn and Leone, said the way to design a clinical trial without an unethical "no food" arm is to make the control arm one in which the individuals have access to SNAP and a food bank and compare that arm to the intervention arm. Hess and Berkowitz both agreed that it is imperative to move to more sophisticated research models such as the one Renda proposed.

An unidentified participant noted that her institution worked with the Greater Chicago Food Depository to create seven hospital-based food pantries that are open 24 hours per day, every day. They are self-serve and do not require a food prescription. Some hospital employees take advantage of it, in addition to patients and families of children who are hospitalized. She noted that in many cases, individuals who take advantage of these pantries then volunteer to give back to the pantry. Hess commented that the volunteers in her program are largely those individuals who participate in it. Leone added that her organization has a strong effort to bring people with lived experience to Washington to speak with lawmakers. Berkowitz added that he included participants in study design work.

5

Interventions Addressing Multiple Social Needs

Key Points Raised by Individual Speakers

- Interviews with 10,000 low-income individuals revealed that most want informal psychosocial support or support for making health behavior changes. While nearly 15 percent want referrals to resources for daily life, such as housing or transportation, nearly 11 percent want support with health system navigation, and only 2 percent want help with a specific medical issue. (Kangovi)
- Federal agencies have recognized the value of medical–legal partnerships and have various mechanisms that can provide funds for these partnerships. (Regenstein)
- Many organizations have community health worker programs or social determinants of health programs that they think are working but in fact are merely seeing regression to the mean. (Kangovi)
- As health care changes from a sick care system to a well care system, opportunity must be created across all sectors, especially for those smaller community-based organizations that have been doing this work forever so that they are part of the solution and do not get pushed out of the solution. (Kangovi, Lindau)
- The shift to value-based payments is key to achieving whole person care. (Lindau)

- Value-based payments are a good start, but they only hold a limited number of people—all in health care—accountable, which points to the need for a mechanism to broaden accountability and create a bridge between health care and community-based services. (Uchendu)
- Health care professionals identify people's unmet needs all the time, but what they lack is a high-quality, respectful, and reliable process for acting on those unmet needs; one way to deal with that is to incorporate the process for referring patients to services into the standard workflow through the electronic health record. (Lindau)
- Law is a social determinant of health, so adding legal competence to a health care team can sometimes unlock great benefits for patients. (Regenstein)
- Science should be used to channel the voices of people who are often not heard and use those voices to inform the design of interventions that should be tested in the same way drugs and medical devices are tested, with implementation science being used to scale a successful intervention. (Kangovi)
- The "wrong pockets" problem where organization A might invest the money, but organization B reaps the benefits at some point in the future—is a significant barrier to investing in successful programs. (Szanton)

The workshop's fourth panel moved the discussion from one focused on interventions to address specific social needs to one looking at interventions addressing multiple social needs or the whole person. The four speakers in this session were Shreya Kangovi, Assistant Professor of Medicine at the University of Pennsylvania Perelman School of Medicine and founding Executive Director of the Penn Center for Community Health Workers; Sarah L. Szanton, Health Equity and Social Justice Endowed Professor and Director of the Center for Innovative Care in Aging at the Johns Hopkins University School of Nursing; Marsha Regenstein, Professor of Health Policy and Director of Research and Evaluation at The George Washington University's National Center for Medical-Legal Partnership; and Stacy Tessler Lindau, Founder and Chief Innovation Officer of NowPow and Professor of Obstetrics and Gynecology and Medicine-Geriatrics at The University of Chicago. An open discussion moderated by David Chokshi followed the four short presentations.

IMPaCT: A STANDARDIZED, SCALABLE COMMUNITY HEALTH WORKER PROGRAM

To start her presentation, Shreya Kangovi told the story of Purnimaya, a woman who spent 25 years living in a tent in a Nepalese refugee camp until 2 years ago, when she was resettled to Nashville, Tennessee. Maya found herself in a foreign land, overwhelmed by dark memories, so she spent her days laying on a pile of blankets on the floor, too depressed to climb into bed. Concerned about his wife, her husband took her to a refugee clinic in downtown Nashville, where they met Hannah, a community health worker with the Individualized Management for Patient-Centered Targets (IMPaCT) program. Hannah, when she gently asked Maya in their native Nepalese tongue what she thought would help her to feel better, learned that Maya felt she was dying of loneliness.

Hannah visited Maya in her home each week and eventually convinced her to meet a group of other Bhutanese women, who reminisced about home and brought fresh vegetables from their small gardens to share. Week by week, Maya began to feel joy again, joy that led her to work with Hannah on other things, such as seeing a behavioral health specialist, arranging transportation for appointments, and getting low-cost medications. Maya began to spend her days outside gardening and her nights sleeping well in her own bed.

To Kangovi, Maya's story gets to what it means to think about the whole person. "Yes, Maya needed linkages to behavioral health and referrals for transportation, but she needed something more," said Kangovi. "That *more* is love, the power of human connection." The challenge she added, is figuring out how to turn the power of human connection into a scalable intervention. Addressing that challenge motivated her and her team to build IMPaCT, a standardized, scalable community health worker program that starts with getting to know each patient as a person and finding out from patients what they need to improve their health.

Kangovi explained that what Hannah did for Maya was magical but not accidental, for Hannah was selected using a specialized algorithm designed to identify natural helpers and listeners. The questions Hannah asked Maya came from an interview guide that Kangovi's team designed after interviewing thousands of low-income patients, and she documented her notes in an app co-designed with community health workers. Hannah's supervisor at her clinic was a manager trained using IMPaCT's online interactive platform.

Kangovi and her colleagues have studied this approach in three randomized controlled trials that demonstrated improved chronic disease control, primary care access, mental health, and care quality while also achieving a 65 percent reduction in total hospital stays (Kangovi et al., 2016, 2017, 2018). These outcomes, she said, translate into a return

on investment (ROI) of $2 for every $1 spent within the same fiscal year, which enabled the program to grow so that it now serves some 10,000 patients in the Philadelphia region. Her team is building IMPaCT programs across the country so that, as she put it, a Nepalese woman in Nashville, a veteran in Pittsburgh, and a migrant worker in Louisiana can use the same standardized operating system to unlock their ability to unleash the power of human connection.

Concluding her remarks, Kangovi noted that while the workshop was well attended by experts, those are not the people these programs serve. "I do think it is important that we anchor this conversation in what actual low-income people would want in order to improve their own health," she said. In her case, speaking with 10,000 low-income individuals and asking them what they thought would improve their health identified five major categories (see Figure 5-1). Most individuals, she said, want informal psychosocial support or support for making health behavior changes, while nearly 15 percent want referrals to resources for daily life, such as housing or transportation. Almost 11 percent want support with health system navigation, and only 2 percent want help with a specific medical issue.

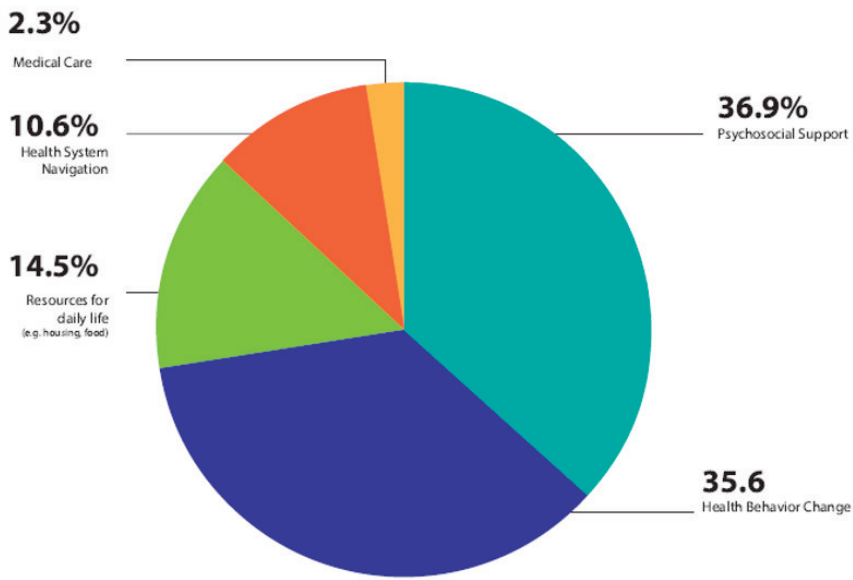

FIGURE 5-1 What patients believe will help them improve their health.
SOURCE: Presented by Shreya Kangovi, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs.

COMMUNITY AGING IN PLACE—ADVANCING BETTER LIVING FOR ELDERS (CAPABLE)

What the CAPABLE program does, said Sarah Szanton, is unleash people's own goals and desires to help them age in place in their home through 16 weeks of care by a nurse, an occupational therapist, and a handyman. As a long-time house-call nurse practitioner, Szanton had seen how much someone's home environment could be as disabling as a medical condition. Too often, she said, clients would answer the door on hands and knees or had to drop their keys out of an apartment window because they could not go down the stairs to greet her. One 100-year-old woman had to crawl into the kitchen because her wheelchair would not fit through the door, so all she could eat was whatever food she could reach from her knees.

Szanton reminded the workshop that close to 5 percent of Medicare spending is preventable and that the frail elderly account for 51.2 percent of the total of potentially preventable spending (Figueroa, 2017), and those are the instances CAPABLE is trying to prevent. The program costs less than $3,000 per patient and provides an ROI of between sevenfold and tenfold, including savings for Medicare and Medicaid, within 2 years. The program is now in 27 locations in 12 states and has been shown to improve activities of daily living disability in older adults with multiple conditions, as well as reduce depressive symptoms. Overall, some 79 percent of participants improve, she added.

The core concept driving CAPABLE is that the person and the environment have to fit together, which is why the program includes a handyman to make repairs and modifications that eliminate the physical barriers in the home that keep individuals from getting around in their homes or getting out of their homes to engage in their communities. One common complaint of CAPABLE clients is that they are lonely because they cannot leave their home. A client may have a hard time getting dressed, for example, so the occupational therapist will work with the client to achieve the goal of self-dressing using a zipper helper and a sock aid provided by the program. The program might also provide a portable car hook and swivel seat so the client can get into her daughter's car, for example. Together, those items cost less than $100, but they represent the difference between someone being able to participate in the community and not. Another client might want chairs placed around the home so he can practice getting up and walking instead of crawling around the home. "It is their own motivation and their own strengths that dictate what the nurse, occupational therapist, and handyman work on," said Szanton.

This approach, she added, builds self-efficacy for tackling new challenges. She noted that CAPABLE clients will sometimes call months after finishing the program to talk about new goals they want to achieve.

ADDRESSING SOCIAL DETERMINANTS OF HEALTH THROUGH MEDICAL–LEGAL PARTNERSHIPS

The National Center for Medical-Legal Partnership, explained Marsha Regenstein, is a group of people who work with hundreds of organizations around the country to try to advance the notion of bringing lawyers to the bedside to help patients get access to the benefits and the services to which they are entitled. The key element of the program is a civil attorney who partners with a health care organization that has a mechanism in place to identify patients in need. The lawyer then provides services that can range from a 5-minute phone call that unlocks some benefit for the patient to months of work on a more challenging issue. Because the intervention is highly variable, it suffers the same evaluation challenges faced by other programs addressing social determinants of health that are highly variable, she added.

Regenstein described three examples (see Table 5-1) of the different constructs of medical–legal partnerships that health care organizations have adopted (Regenstein et al., 2018). An example of the general population model, which she called the bread-and-butter medical–legal partnership, is a joint effort between the Cincinnati Children's Hospital Medical Center and the Legal Aid Society of Greater Cincinnati. This program referred 825 patients in 1 year to program lawyers, who largely dealt with legal issues involving housing, public benefits, and education.

The special population model targets specific clinical issues or life-stage issues. One example of this model addresses postpartum depression and involves a partnership between the Delaware Division of Public Health and the Community Legal Aid Society, Inc. In this case, lawyers make home visits to help patients with issues involving family law, immigration, and housing.

Whitman-Walker Health in Washington, DC, which has embedded medical–legal partnering throughout its activities, is an example of the alternative legal services models. Regenstein said that Whitman-Walker Health thinks of this partnership, which has 11 full-time lawyers on staff, as part of providing care and not as a legal intervention. The most common legal needs that the program addresses include public benefits and transgender identity legal document changes.

In closing, Regenstein noted that several federal agencies have recognized the value of medical–legal partnerships. For example, the Health Resources and Services Administration now recognizes legal services as an "enabling service," which allows federal health center dollars to pay for a medical–legal partnership. The Centers for Medicare & Medicaid Services (CMS) classifies "screening for health-harming legal needs" as an improvement activity under Medicare's merit-based incentive payment system. The Substance Abuse and Mental Health Services Administration

TABLE 5-1 Three Models of Medical–Legal Partnerships

Health Care Organization	Legal Partner Organization	Referred for Legal Services in 2016		Primary Site of Legal Services	Patient Population Served by Partnership	Most Common Legal Needs in Order of Prevalence
		Number of Patients	Percent of Patient Population			
General Population Model						
Cincinnati Children's Hospital Medical Center (Ohio)	Legal Aid Society of Greater Cincinnati	825	3	Three primary care clinics at nonprofit pediatric hospital	Children and families	1. Housing 2. Public benefits 3. Education
Special Population Model						
Delaware Division of Public Health	Community Legal Aid Society, Inc.	181	0.5*	Maternal and child health program	Pregnant/ postpartum women	1. Family law 2. Immigration 3. Housing
Alternative Legal Services Model…						
Whitman-Walker Health (Washington, DC)	No legal partner organization	1,546	10	Ambulatory care/ behavioral health sites of FQHC	HIV-positive, LGBTQ, and health center patients	1. Public benefits 2. Transgender identity legal document changes

NOTES: * Legal services were not offered to the total patient population; therefore, the share of patients served at this organization underrepresents patient need for these services. FQHC = federally qualified health center; LGBTQ = lesbian, gay, bisexual, transgender, and queer.
SOURCES: Presented by Marsha Regenstein, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Adapted from Regenstein et al., 2018. Republished with permission of Project Hope/Health Affairs Journal from *Addressing social determinants of health through medical-legal partnerships*, Regenstein, M., J. Trott, A. Williamson, and J. Theiss. 37, 3, 2018; permission conveyed through Copyright Clearance Center, Inc.

has singled out medical–legal partnerships in recent mental health and substance use disorder treatment block grants, and the U.S. Department of Veterans Affairs (VA) encourages its medical centers to provide free space for onsite legal care. In addition, Medicaid is now offering innovative finance opportunities for medical–legal partnerships.

COMMUNITYRx: CONNECTING HEALTH CARE TO SELF-CARE

CommunityRx, explained Stacy Tessler Lindau, was developed with a round one Health Care Innovation Award from CMS, which came with expectations that innovations would lead to a sustainable business model. In this case, she said, that expectation led her to create NowPow, a for-profit technology company, and MAPSCorps, a nonprofit youth workforce development and community asset mapping company. CommunityRx, she added, is an intervention based on two theoretical frameworks: Anderson's behavioral model of health services use and Grey and colleagues' model of self- and family management.

During the CommunityRx innovation period, MAPSCorps employed 288 local youth from the South Side of Chicago to conduct a systematic census of more than 19,000 businesses and organizations operating in the community. Lindau and her colleagues built evidence-based algorithms and used computational phenotyping to create a mechanism by which health care professionals could prescribe community services in the same way they prescribe drugs, which is directly from the electronic health record (EHR) workflow. During the innovation period, CommunityRx software was integrated with three EHR platforms at 33 health care sites. More than 113,000 participants received more than 253,000 personalized referrals to more than 7,000 community resources. Lindau noted that one in five participants within 2 weeks of receiving a referral went to a place they had never been before, and 49 percent of the people used this information to help someone else (Lindau, 2019; Lindau et al., 2016, 2019). Currently, three trials of CommunityRx are ongoing (see Table 5-2).

Community is an important factor affecting translation of this intervention, said Lindau. In her experience, clinicians are end users, but it is administrators who are doing the intake of technology-based solutions, so those two groups need to come closer together. She said,

> In health systems where clinicians are working with information technologies in a tightly coupled way with administrator or operations professionals, we are early adopters of implementing solutions to connect people to the research of our community and addressing the issues we have been talking about today. When we are not talking to each other, we are laggers.

TABLE 5-2 CommunityRx Trials Under Way

Targets	Population	Setting	Region	Design	Funder	Status
ABCS	CVD risk (*N* = 226 practices)	Small primary care practices	Midwest states	RCT	AHRQ Evidence Now[a]	Dissemination
Research recruitment, enrollment	Patients eligible for asthma, COPD studies (*N* = 13,437)	Academic medical center	Chicago	Prospective implementation study versus usual practice	NIGMS CTSA (pilot)[b,c]	Dissemination
Food insecurity, self-efficacy, health, health care satisfaction	Caregivers of hospitalized children and children (*N* = 640)	Children's hospital inpatient units	Chicago	Double blind RCT	NIMHD R01[d]	Starting
HRQOL, self-efficacy	Middle age, older Medicare/Medicaid recipients (*N* = 411)	Academic primary care and emergency medicine clinics	Chicago	Pragmatic trial, randomized by alternating calendar week	NIA R01[e,f]	ABM under way

NOTE: ABCS = aspirin therapy, blood pressure control, cholesterol management and smoking cessation; ABM = agent-based model; AHRQ = Agency for Healthcare Research and Quality; COPD = chronic obstructive pulmonary disease; CVD = cardiovascular disease; HRQOL = health-related quality of life; NIA = National Institute on Aging; NIGMS CTSA = National Institute of General Medical Sciences Clinical and Translational Science Award; NIH = National Institutes of Health; NIMHD = National Institute on Minority Health and Health Disparities; RCT = randomized controlled trial.

[a] AHRQ R18HS023921 (A. Kho, Principal Investigator). AHRQ, 2019; Lindau, 2019.

[b] NIH CTSA Pilot 4UL1TR000430 (J. Solway, Principal Investigator; S. T. Lindau, Principal Investigator of Pilot). For information on the NIH Clinical and Translational Science Awards (CTSA) Program: https://ncats.nih.gov/ctsa (accessed August 7, 2019).

[c] Feldmeth et al., 2019.

[d] NIH/NIMHD R01MD012630 (S. T. Lindau, Principal Investigator).

[e] NIH/NIA R01AG047869 (S. T. Lindau, Principal Investigator).

[f] Lindau et al., 2019.

SOURCE: Presented by S. T. Lindau, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs.

DISCUSSION

David Chokshi opened the discussion by asking the panelists to identify one barrier within the category of an evidence gap or policy gap that affects wider implementation of interventions that promise to address multiple social needs. Kangovi responded that what she has seen in working with thousands of organizations across the country is that many of them have community health worker programs or social determinants of health programs that they think are working but in fact are merely seeing regression to the mean. Programs need to be assessed using better evaluation methods. Regenstein agreed completely with that statement, and she added that the need to work across multiple professional cultures can also be a barrier. As an example, she noted that getting lawyers to think about social needs in the same way that health care organizations do is a difficult task that requires a great deal of training. Defining the problem to address, she said, depends on who is looking at the problem.

For Lindau, a barrier is the lack of knowledge about all the working pieces that come together to make a community and the assets that a community has with which to build a successful program. One policy she would recommend adopting would be that every community organization that receives funding, whether from government or philanthropy, should meet certain infrastructure standards, such as having a full presence on the Internet and an Internet connection to make them easier to find—this would require a shift away from allowing nonprofits to be funded without appropriate coverage of critical overhead costs.

Szanton pointed to the "wrong pockets" problem—organization A might invest the money, but organization B reaps the benefits at some point in the future—as a significant barrier to investing in successful programs. As an example, she noted how CAPABLE pays for the handyman's work and the nurse and occupational therapist visits, but the resulting savings go to Medicare and Medicaid. In the ideal situation, CMS would pay upfront for CAPABLE's services. In contrast, the VA can invest in programs knowing that it will reap the savings down the road because it keeps its patients for life.

Lindau, responding to a question about how to expand programs and policies nationwide, suggested the field should operate on the principle of inclusive growth. "As we grow health care from a sick care system to a well care system, we ought to think carefully about how we create opportunity across all sectors, especially those smaller community-based organizations that have been doing this work forever, to be part of the solution not get pushed out of the solution," she explained. Kangovi agreed and added the importance of including community health workers in any solution because they are likely to be closest to the individuals these programs are meant to help. Regenstein added that an important

question to ask patients is whether they can afford their medications or if they have other financial stresses.

Chokshi asked the panelists if they are confident or skeptical that value-based payments will help increase investments in interventions that address social needs. Szanton said she is optimistic based on developments such as Medicare Advantage plans now having the capability to add programs such as CAPABLE and the need for savings in Medicaid programs. Lindau said that she believes that economic incentives work, and she sees that happening today based on the fact that for the first time in her many years as a practicing physician, she and her colleagues are talking regularly about how to keep people healthy outside the doctor's office instead of focusing solely on treating people when they are sick. For her, the shift to value-based payments is critical to a system of caring for the whole person.

One change Lindau said she would like to see is for the human and social services sectors to move from the pencil-and-paper era to the digital economy. Health care was slow to make this shift too. Accomplishing this shift would likely require a carrot-and-stick approach, similar to electronic medical record and digital prescribing adoption policies. Uche Uchendu commented that value-based payments are a good start, but they only hold a limited number of people—all in health care—accountable. In her opinion, there is a need for some mechanism to broaden accountability and create a bridge between health care and community-based services. Lindau responded that NowPow, along with many other companies, are trying to build that bridge in order to make digital communication routine across all sectors of what she calls the caring community.

Mita Goel from Northwestern University and the National Collaborative for Education to Address the Social Determinants of Health noted that most of the programs discussed so far have the clinical encounter as the entry point. She wondered how the panelists' programs were preparing the health care workforce to recognize in a systematic fashion when an individual has unmet social needs and connect them to the necessary services. Regenstein responded that training is a big part of the medical–legal partnership. Program lawyers talk to health care system staff about the importance of screening and recognizing when there is a social need that legal services could resolve. She noted that the Cincinnati Children's Hospital Medical Center trains all of its residents how to work with the institution's medical–legal partnership.

Kangovi said that IMPaCT has training programs for health professionals that it has scaled across the country, as well as a program in which medical and nursing students apprentice for 2 to 4 weeks with community health workers to learn how to recognize the social determinants of health. Lindau added that health care professionals identify people's

unmet needs all the time, but what they lack is a high-quality, respectful, and reliable process for acting on those unmet needs. To her, the way to deal with that is to incorporate the process for referring patients to services into the standard workflow through the EHR. CAPABLE's "secret sauce," said Szanton, is its use of motivational interviewing to elicit patient goals and to identify an individual's strengths and assets to draw upon when addressing that person's needs.

Chokshi noted this is a time of growing income inequality and other structural issues that contribute to the multiple social needs these programs are trying to address. His question to the panelists was whether those structural or policy issues are beyond the scope of interventions designed to address multiple social needs. Szanton said the community at large should be working on these structural issues, but every individual needs to work on an aspect that fits their personality and skills. Regenstein said this comes down to deciding how much responsibility the health care system or the individual provider has for individuals once they leave the hospital or doctor's office. To her, it is "penny wise and pound foolish" to invest in caring for someone in a clinical setting and not look at the whole person, which is why health care is working on solutions that extend beyond their physical walls even though the health care system may not be the most logical place from which such programs should originate.

Lindau, returning to her earlier comment on the need to bring the human and social services sectors into the modern digital economy, said that if the sectors had the resources to make transparent their full inventories of programs and services, then health and human services workflows could be connected digitally. The result would be digital evidence of transactions that are currently invisible to the 21st-century economy because they are on paper. Digitizing the work of connecting and communicating across the sectors generates data that are essential to understanding the demand for these services, supply of and gaps in these services, and for making data-driven decisions and investments in our communities. "With these powerful data," she said, "we are in a position to advocate far more effectively for remedies that address true social and structural determinants of health."

Responding to a question about expanding these programs to rural or smaller metropolitan areas, Kangovi said the IMPaCT program works well in rural areas and was designed deliberately to be a universally adaptable model that can operate in a variety of environments. Medical–legal partnerships, said Regenstein, are highly customized to involve lawyers who work in close proximity to a health care organization, which means that they are challenging to establish in rural communities given there is less legal capacity there. She noted that her center is trying to

work with primary care associations and other groups to stretch the available resources in smaller or rural communities. Lindau mentioned the Healthy Hearts in the Heartland program, which focused on providing tools that small primary care practices could use to connect patients to community-based resources that would prevent cardiovascular disease. A main barrier to success, she said, was a lack of capacity in these small practices to integrate new uses of electronic medical record systems.

Chokshi concluded the discussion period by asking each panelist for one key point regarding what is needed to move interventions that address multiple social needs forward. Szanton replied that physical function is important and modifiable, and the way to get at that is to ask people what they would like to be able to do. Lindau said that the field needs to elevate its attention to detail around the vital assets of communities to at least the same level that it pays to pharmaceuticals. "Community drives health, drugs do not," she said.

Regenstein's key point was that law is a social determinant of health, so adding legal competence to a health care team can sometimes unlock great benefits for patients. Kangovi said that science should be used to first channel the voices of people who are often not heard and then use those voices to inform the design of interventions that should be tested in the same way drugs and medical devices are tested, with implementation science being used to scale a successful intervention.

6

Return on Investment

Key Points Raised by Individual Speakers

- There are fairly significant economic impediments to investing in interventions that address the social determinants of health, not the least of which is a lack of understanding in many instances of the economic value of a particular intervention and the timing of any economic returns, and the problem of the returns going in the wrong pockets. (Miller)
- Determining return on investment (ROI) for prevention interventions in general and social determinants of health in particular in a value-based context is uncharted territory. (Alley)
- There are other forms of ROI beyond financial, and there are other drivers of provider behavior in a value-based environment. Some interventions, for example, may improve patient satisfaction, improve provider satisfaction, reduce provider burnout, or improve quality measures. (Alley, Knutson)
- Every population is going to have a different mix of social determinant needs, so figuring out the payment model that accounts for all of the different types of needs that a population could have, and doing that at scale across a large geography, is a challenge. (Knutson)
- Most medical services are approved for reimbursement with no ROI analysis, in contrast it seems non-medical, health-related social needs have to meet a high ROI standard. (Auerbach)

The workshop's fifth panel session expanded on earlier mentions of return on investment (ROI), particularly with regard to creating a business case for investing in interventions when the benefits of those investments might not accrue to those who make the investments or they might not be realized until far into the future. The three panelists in this session were George Miller, a Fellow at the Altarum Center for Value in Health Care; Dawn Alley, Director of the Prevention and Population Health Group at the Center for Medicare & Medicaid Innovation (CMMI); and Katherine Hobbs Knutson, Chief of Behavioral Health at BlueCross and BlueShield of North Carolina. Following the three short presentations, John Auerbach moderated an open discussion.

ASSESSING THE VALUE OF THE SOCIAL DETERMINANTS OF HEALTH

As the discussions at the workshop have indicated, research suggests that investments in interventions that address the social determinants of health not only improve health but can be cost effective and cost saving. However, said George Miller, there are fairly significant economic impediments to investing in these interventions, not the least of which is a lack of understanding in many instances of the economic value of a particular intervention and the timing of any economic returns. Another impediment, he added, is the "wrong pockets" problem that Sarah Szanton noted in the previous panel session. "A better understanding of these issues might encourage cooperation among stakeholders in investing in social determinants," said Miller.

With funding from the Robert Wood Johnson Foundation, Miller and his colleagues have developed an approach to thinking about how to invest in the social determinants of health and what the value of those investments might be from the perspective of different stakeholders. They are then using this approach to synthesize existing data about the effects of interventions over time of investments designed to modify the social determinants of health on health outcomes and financial returns. Underlying this approach is a high-level framework for describing the effects of the social determinants of health (see Figure 6-1).

The Value of Health Tool uses intervention-specific effects as a function of age on mortality, morbidity, health care costs, earnings, and incarceration costs plus generic economic inputs to produce as its output an overall value to different stakeholders, the effect of health care spending by different stakeholders, and the maximum investment to achieve the

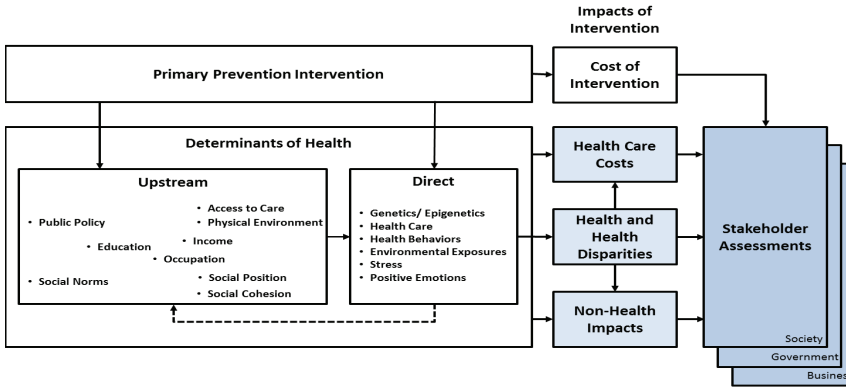

FIGURE 6-1 A high-level framework to describe the effects of the social determinants of health.
SOURCES: Presented by George Miller, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs. Adapted from Miller et al., 2015.

desired ROI and cost effectiveness. Miller and his colleagues have used this tool for a variety of interventions, including

- early childhood interventions;
- trauma prevention;
- smoking prevention;
- obesity prevention;
- the burden of the opioid epidemic;
- lead exposure mitigation at the national, state, and city level;
- pediatric asthma in a Medicaid population; and
- the use of long-acting reversible contraceptives in a Medicaid population.

As an example, Miller looked at the effect of reducing childhood exposure to lead poisoning using three particular interventions: service line replacements to eliminate lead in household drinking water, controlling exposure to lead paint in older homes, and using lead-safe standards when repairing older homes that may have lead in them. Each of these interventions produces a significant improvement in blood lead levels and overall health, and in each case, there is a positive ROI for investments in these interventions (see Figure 6-2). These returns, however, accrue to different stakeholders over time. In fact, said Miller, the largest part of these returns has to do with improved downstream income, a payoff many years in the future.

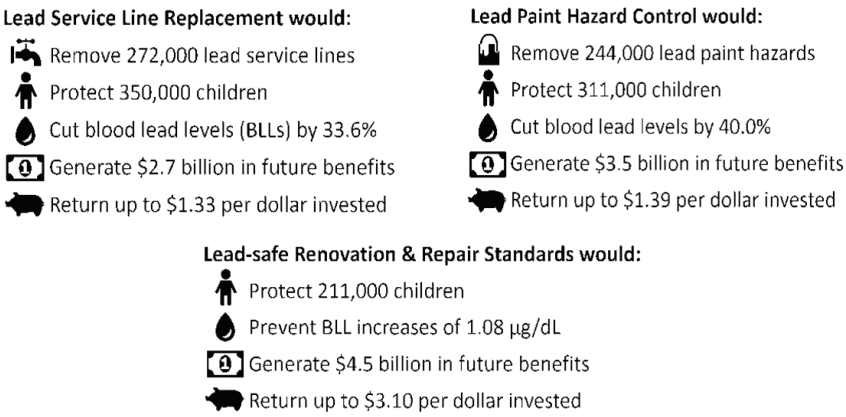

FIGURE 6-2 Return on investment for three interventions to reduce childhood lead exposure.
SOURCE: Presented by George Miller, April 26, 2019, at the Workshop on Investing in Interventions That Address Non-Medical, Health-Related Social Needs.

RETURN ON INVESTMENT AT THE CENTERS FOR MEDICARE & MEDICAID SERVICES

Dawn Alley began her presentation by noting that figuring out how to determine the ROI for prevention interventions in general and social determinants of health in particular in a value-based context is uncharted territory. She explained that when the Centers for Medicare & Medicaid Services (CMS) is considering a new coverage decision for a medical procedure, it bases that decision on clinical effectiveness, rather than cost effectiveness. However, for a prevention intervention tested through the CMS intervention the goal is to remain at lease cost-neutral and have an ROI of at least 1:1.

One consideration for CMS is how many patients will need an intervention. For example, it may make sense to pay for an air conditioner for someone with chronic obstructive pulmonary disease because it will keep that person out of the hospital. As a payer, however, CMS needs to consider how many air conditioners it will have to pay for to prevent one hospitalization. In the same vein, CMS's diabetes prevention program targets a narrower group of people with prediabetes than would be included using the Centers for Disease Control and Prevention definition of prediabetes.

Alley explained that CMS is looking for opportunities to embed work on health-related social needs into value-based payment models. As an agency, she said, CMS is working to eliminate fee-for-service payments

and delegate more risk to providers. "But we recognize that as we delegate risk to providers and plans, it is also incumbent upon us to think about how we invest in public health solutions and some of these infrastructure elements," said Alley. On a closing note, she said that CMS recognizes there are other forms of ROI beyond financial and that there are many other drivers of provider behavior in a value-based environment. Some interventions, for example, may improve patient satisfaction, improve provider satisfaction, reduce provider burnout, or improve quality measures.

BEYOND THE RETURN ON INVESTMENT

Katherine Knutson's first point in her presentation was that a positive ROI may not be enough to justify moving ahead with an intervention. "There are many more things beyond the economic argument that contribute to whether an organization is going to invest," she said, adding that funders often have many interventions with ROIs presented to them, making it important to be able to articulate how a particular intervention and its ROI stacks up against all the other potential interventions. It is also important, she said, to account for the fact that the funding entity may not have responsibility for the intervention's outcome or benefit from future economic returns.

When evaluating the ROI, it is important to know the prevalence rates for the non-medical, health-related social needs and what dose of the intervention will be needed to produce a meaningful improvement in the health of the targeted population and cost savings at the expected scale, said Knutson. She acknowledged that with non-medical social needs, the true burden in a given population is often not known. She also noted that even if the ROI is low, some funders will still invest in an intervention if it addresses issues aligned with the organization's mission.

Knutson said that her organization is building alternative payment models for behavioral health and is focused on addressing the social needs of its clients, understanding that if it does this well, it will see the outcomes it desires. One challenge, she said, is figuring out how to pay for these interventions in a value-based model. Particularly with shared savings, there may be a dozen entities contributing to the intervention, and parsing out the savings to all of them dilutes the financial incentive to any one of the entities.

Another challenge in scaling interventions to address non-medical, health-related social needs across a state, for example, is that there will be different social environments and different kinds of community-based organizations for which to account. As a result, it can be difficult for a payer to trust that it is paying for an intervention at the appropriate scale

and quality while meeting the needs of these disparate communities. "Every population is going to have a different mix of social determinant needs, so figuring out the payment model that accounts for all of the different types of needs that a population could have, and doing that at scale across a large geography, is a challenge," concluded Knutson.

DISCUSSION

To start the discussion period, John Auerbach noted that most medical services get approved for reimbursement with no ROI analysis, as demonstrated by the incredibly high-cost services offered at the end of life even when the evidence suggests there will be little benefit in terms of extending life or improving the quality of life. In contrast, it seems that interventions to address non-medical, health-related social needs have to meet a high ROI standard. He then asked the panelists if there are specific returns used in their organizations as criteria for deciding about approving a new benefit. Alley replied that cost and utilization are major criteria, and she acknowledged that developing the data needed to determine cost, utilization, and outcomes requires testing the intervention in a large number of people. Her hope is that the Accountable Health Communities model will help generate that type of data. Other considerations include how to recognize which providers are qualified to offer a particular intervention, how many minutes it will take to deliver a particular service, and what a reasonable payment for that service will be. "We at CMS need to be clear on what it is we are paying for, so we need some structure around the intervention as well as the data on how it impacts utilization," said Alley.

For Knutson's organization, it is important to first define what return means, because there will be different returns for different audiences. The chief financial officer, for example, is likely to be interested in financial returns, the clinical team will want to know about health effects, and the chief executive officer might be more concerned with whether an intervention will help the organization fulfill its mission.

Auerbach then asked the panelists if their organizations have a specific time period in mind when they consider the ROI for a given investment. Knutson responded that this represents a major challenge to investing in interventions that may pay off decades later, such as prevention and early intervention efforts. Alley said she feels the same way about this issue, adding that she was not aware of an industry-wide standard. CMS, she noted, typically looks at returns over a 10-year period.

Miller said that it is incumbent on health systems to cooperate with other stakeholders to find ways to invest in interventions that everyone agrees are effective and a good idea in a global sense but for which no one stakeholder will earn a significant return on their investment in the

near term. An approach to doing this, he said, might be to have a trusted broker who can elicit from each stakeholder how much they are willing to invest in an intervention. The trusted broker would then add those investments and if the total exceeds the amount needed to deploy the intervention, the trusted broker can go back to each stakeholder and tell them the investment they need to make will be smaller than expected (Nichols and Taylor, 2018). Alley commented that CMS's Accountable Health Communities might be able to serve in the role of trusted broker.

Responding to a question from Auerbach about how to frame the "wrong pockets" problem for effective interventions, Miller said that altruistic investors may not care about returns going to the wrong pockets. Some investors, however, do care about financial returns and may pass on paying for an intervention unless there is a positive ROI for them.

Seth A. Berkowitz asked the panelists for ideas on how to change the emphasis on a narrowly defined financial ROI as a consideration for investing in a health-related social needs intervention. Alley replied that value-based payment frameworks represent a tremendous opportunity to move forward with these interventions, but these frameworks potentially exclude interventions that would generate tremendous value when considered from a broader perspective that includes driving improvements in health and the quality of care. Another concern of hers is that organizations are going to do the easy things first, such as engaging in activities aimed at high utilizers, under these value-based frameworks, and that harder challenges, such as addressing non-medical, health-related social needs, will take a back seat to these easier opportunities to reduce costs quickly.

After each of the panelists called for more research on the non-medical, health-related determinants of health and social needs and on the effectiveness of interventions designed to address those issues and their associated ROIs, Kelly Doran from the New York University School of Medicine asked the panelists to comment on the potential role of health care system regulation that might encourage more investment in social needs. Alley replied that CMS has issued a proposed set of questions that patients should be asked in a post–acute care setting, such as a skilled nursing facility, regarding their social needs, including transportation. She then noted the need for anyone considering regulatory proposals to consider what specific requirements they would want and how they would codify evidence-based interventions or the desired health outcome.

Knutson did not suggest any recommendations but did note that she has seen through her experience of being part of three accountable care organizations that value-based payment arrangements are incentivizing health systems to look at the non-medical drivers of health care costs and make investments in behavioral health, social determinants,

and social needs interventions. Polsky added that he has seen a culture clash between health care systems, which are being forced to look at costs and the ROI, and social services, which historically have not cared if there was an ROI associated with providing food or housing for those in need. Addressing that culture clash is going to need a better evidence base, which in turn requires more research, he said. Alley cautioned that such change is going to be hard and will take time, as evidenced by the experience CMMI has had with some of the models it has tested. Many interventions, in fact, showed slight increases in costs before they started to decline over time.

Karen DeSalvo raised the possibility of tapping into the pharmaceutical industry's clinical trials process to collect data on unmet social needs. She noted that in the course of conducting research in some of the nation's poorest communities, they identify unmet needs and address them so people continue participating in clinical trials.

After commenting that regulations around quality metrics might be able to play a role in incentivizing health care systems to work more on social needs, Miller suggested that it would be helpful if Medicare and Medicaid continued loosening some restrictions around what constitutes an appropriate investment beyond those on direct health care. Knutson added that value-based reimbursement policies applied to the total cost of care have the potential to turn the current system on its head and make health and prevention rather than illness the focus of care.

In a final comment in the session, Alley said it is still unclear in a value-based system who should be held accountable and how to pay for which outcomes. As an example of progress, she said that CMS is working with Maryland on population health credits that will allow the state to keep a larger part of any savings based on reducing the prevalence of diabetes in the state. While she characterized this experiment as exciting and remarkable, it is not something that would be feasible at the practice level, for it would not make sense to pay providers based on the incidence of diabetes in their patient populations.

7

Research Gaps

Key Points Raised by Individual Speakers

- Although there is a great deal of interest and work under way in the U.S. health care sector related to social conditions, gaps in knowledge include the most effective and efficient ways the health care sector can help reduce social barriers to health. (Fichtenberg)
- Current screening tools for social risks identify many people who face social barriers to health but subsequently refuse help from the health system. (Fichtenberg)
- One of the biggest gaps in knowledge about effectiveness concerns how these interventions affect health, for which patients, via what mechanisms, and in what contexts. (Doran, Fichtenberg)
- Research is needed to examine the effects of care adjusted for social risks on the experience of care, health outcomes, health equity, and utilization. (Fichtenberg)
- Research is needed to develop, validate, and standardize the tools researchers should use to measure social determinants of health and social needs. (Doran, Fichtenberg)
- Research is needed to understand how to scale effective social care programs, including how policy and payment models can incentivize implementation, adoption, and sustainability. (Fichtenberg)

- It is important to involve experts and stakeholders from sectors outside of health in the design and conduct of research. (Doran)
- There is a need for a systematic assessment of the extent and nature of unmet health-related social needs at the population level for different subgroups in Medicaid and Medicare and writ large. (Kenney)
- If addressing how unmet social needs, individually and in combination, affect health is not challenging enough, it is important to understand the negative effects that unmet health-related social needs have on sectors outside of health care. (Kenney)
- The current approach to evaluating interventions to address social needs undervalues investments that produce positive effects and savings across multiple sectors and across different levels of government. (Kenney)
- An important question is whether substantial health care sector investments in addressing social needs will mean consistently deprioritizing investments that yield benefits and savings for other sectors or that take time to materialize. (Kenney)

The final panel session of the workshop addressed research gaps and how they might be filled. The four panelists were Caroline Fichtenberg, Managing Director of the Social Interventions Research & Evaluation Network (SIREN) at the University of California, San Francisco (UCSF) (who presented slides developed by Laura Gottlieb, SIREN Director and Associate Professor of Family and Community Medicine at UCSF); Kelly Doran, Assistant Professor in the Departments of Emergency Medicine and Population Health at the New York University School of Medicine; Genevieve Kenney, Co-Director and Senior Fellow at the Urban Institute Health Policy Center; and Timothy Waidmann, Senior Fellow at the Urban Institute Health Policy Center. Daniel Polsky moderated an open discussion following the short presentations by the panelists.

A RESEARCH AGENDA FOR HEALTH CARE ACTIVITIES RELATED TO IMPROVING SOCIAL CARE AND SOCIAL CONDITIONS

SIREN, explained Caroline Fichtenberg, is a research center focused specifically on building the evidence about how health systems can address social risks. She described the framework SIREN has been using

to think about the different types of health sector activities related to social risks; the framework includes five categories, three of which focus on clinical care and two that look at community-level activities. These categories comprise the charge to the National Academies of Sciences, Engineering, and Medicine's Committee on Integrating Social Needs Care into the Delivery of Health Care to Improve the Nation's Health.

The framework starts with awareness, which includes ways the health care delivery system increases awareness around social risk factors. Next comes adjustment, which refers to the way in which providers and care teams modify care to mitigate the effect of the social risks and the barriers to health. The third category, assistance, focuses on activities that help patients connect to resources that address any social needs and any barriers to getting help with those needs. Alignment and advocacy activities refer to using the full range of health care resources to help improve social conditions at the community level.

SIREN groups evidence across these categories into effectiveness and implementation research. Effectiveness research, she said, is about what works, why, and for whom. Implementation research is about understanding how best to encourage adoption of these effective interventions.

Turning to awareness, the first group of activities, Fichtenberg said one of the big evidence gaps is understanding how to best identify needs and the patients who can benefit from the types of interventions available in the health care sector. This evidence gap exists, she added, despite the fact that there is a great deal of interest and work occurring around measuring social risks in health care settings. Researchers at Kaiser Permanente-Washington looked at the validity testing that had been done for 21 multi-domain social risk screening tools and found that the median number of quality validity tests conducted was two out of a possible eight (Henrikson et al., 2019). "That tells us there is more work that we need to do to identify valid and effective ways to screen," said Fichtenberg. Along the same lines, Stacy Lindau and her colleagues have shown that even small changes in the widely used Hunger Vital Sign instrument for measuring food insecurity changes the percentage of patients who screen positive (Makelarski et al., 2017).

One key question emerging in this area, said Fichtenberg, is how to identify patients who are interested in assistance and will benefit from it. A number of studies on social risk screening have found the numbers of people who report specific social risk factors on the screening tools is substantially greater than the numbers of people who are interested in receiving help related to those risk factors, and it is not clear why that is. It is possible, she said, that patients who screen positive but do not want help might not prioritize that social risk factor in the context of other competing stressors or priorities. Other possibilities may be that the screening

tools are too sensitive, that patients do not think the health care system can help them with these needs, or that they do not want help from their care team. What is clear, based on consistent findings from multiple studies, is that current screening tools identify a large number of people who are not interested in help from the health system.

Another area needing research concerns the patient acceptability of health care–based social risk screening, including whether screening might stigmatize patients or lead to response-based discrimination, said Fichtenberg. Some suggested that social risk screening should occur only in the context of an ongoing relationship with a case manager, community health worker, or patient navigator. However, Fichtenberg and her colleagues have completed a study involving 1,000 patients at 10 sites, the results of which will be available in fall 2019, which found patient acceptability to be high. Participants voiced some concerns that they were slightly less comfortable with information about their social risks being stored in the electronic health record.

In the area of implementation, adoption, and sustainability of interventions, Fichtenberg said more research is needed on how to make data collection feasible and sustainable for different health care organizations. Studies here should focus on understanding how health information technology can support implementation, adoption, and sustainability and what kind of training is needed to help the clinical workforce develop the competence and comfort to screen patients for social risks. Research is also needed to understand how policy and payment models can incentivize implementation, adoption, and sustainability once these other questions are answered.

There are many information gaps regarding adjustment activities, largely because they have received little attention from the research community. One open question, for example, has to do with how, for whom, and when health care organizations should individualize care based on information about non-medical, health-related social needs and risks. One recent study in this area did find that providers who were given access to data about social risks reported they had changed how they provided care; however, more research is needed. Research is also needed to examine the effects of care adjustment activities on the experience of care, health outcomes, health equity, and utilization. It is particularly important, she noted, to ensure that any information collected is not used in any way to discriminate or lower standards of care.

In the area of assistance, the SIREN team reviewed nearly 5,000 papers published between 2000 and February 2017 on social needs interventions (Gottlieb et al., 2017b). Of these, only 67 evaluated a social risk-related intervention and were designed to isolate the effect of those intervention components. Among the 67, only 30 percent examined health outcomes,

20 percent examined utilization and prior outcomes, and only 10 percent were judged to be of high quality.

One of the biggest gaps in knowledge about effectiveness, according to Fichtenberg, concerns how these interventions affect health, for which patients, via what mechanisms, and in what contexts. She has also found no studies that look specifically at the effects of an intervention on health equity. The assumption is that these interventions often focus on the most vulnerable patients and so they *will* reduce health inequities. "We know that if you are not specifically trying to improve health equity, you can, in fact, *not* have an impact on health equity or [you can] have the opposite impact, so it is important to look at that outcome," she explained.

Research on the effect of interventions on utilization and health care costs is generating evidence, and Fichtenberg noted that the Commonwealth Fund is in the process of finalizing a review of the literature that identified 50 studies in this area. Many questions remain, however, because of the heterogeneity of the interventions tested and the outcomes measured. She added that it is also important to look at patient and provider experience of care, which have cost and quality implications. She noted there are a few studies showing that perceived organizational capacity to address social determinants of health in primary care settings is associated with lower provider burnout, which could also affect health systems' bottom lines.

Once the available evidence shines light on interventions that work to address social needs, there will still be a need for research on how to scale effective interventions, said Fichtenberg. This research should look at what supports are needed and whether health information technologies, training, policies, and payment incentives can help drive the adoption of effective interventions. Another area of needed research concerns how these interventions will affect social service organizations.

In summary, said Fichtenberg, interventions directed at social risks are promising but have not yet been studied sufficiently. Effectiveness studies should include a wider array of outcomes, and in particular, should focus on health and health equity outcomes. Finally, she added, implementation science studies are needed to understand how to best translate effective interventions into real-life practice settings.

IDENTIFYING GAPS IN KNOWLEDGE

Kelly Doran began her presentation by acknowledging that the "tidal wave of interest" in addressing social needs through the health care setting is exciting and that many of the individuals at the workshop were conducting the research needed to address the gaps she was about to discuss. The first gap, one that Fichtenberg discussed, regards research

on developing, validating, and standardizing the tools that researchers should use to measure social determinants of health and social needs. "Having a good set of standard tools would allow us to better compare our results across studies, and it would also be helpful for researchers for whom social determinants are not their primary interest," said Doran. "Maybe they are doing cardiovascular disease or diabetes research but would be able to take a set of measures if they were easy and incorporate them into their studies." She noted that the National Institute on Drug Abuse's Clinical Trials Network has a set of common data elements, available online, recommended for use by researchers interested in substance use disorders.

By and large, said Doran, most studies on social needs in the context of health care remain cross-sectional and come with challenges, one of which concerns confounding variables. For example, a cross-sectional study might find that food insecurity is associated with bad health, but food insecurity may just happen to travel along with housing instability, which could be the actual variable associated with bad health. If the study design does not adjust for that association, the conclusion will be incorrect. Solving the problem of confounding variables requires more information on the true social needs that drive health outcomes, the pathways through which those drivers are affecting health, and potential mediators and moderators of those pathways.

Another shortcoming of cross-sectional studies is they cannot provide much information about causality or directionality. Longitudinal research would help with the directionality issue, said Doran, and there has been some work along those lines using administrative data sets, though many of the administrative data sets commonly used by health services researchers lack robust social determinants data. There are, however, ways of combining health services data with data from other sources that could provide useful information, she noted. For example, she collects patient data at a baseline time point on social determinants and gets consent from the patients to link their data going forward with administrative health records to see what the effects those social determinants have on downstream outcomes.

Doran reiterated Fichtenberg's call for more intervention research. "We are at the point now where we need more information on what works," said Doran. To date, most of the research on interventions has examined process and social need outcomes, with less work on downstream health outcomes. To give a parallel biomedical example, studies of a statin drug would have an intermediate outcome of a reduction in serum low-density lipoprotein cholesterol levels, but the ultimate outcome would be how the drug affects cardiovascular health or mortality. Without the latter outcome, the former does not necessarily have any

intrinsic value. In contrast, in the social needs area, intermediate outcomes can have intrinsic value. For example, if an intervention addresses housing insecurity, that alone has benefit even if the desired final outcome among those in the health sector is better health outcomes.

On a final note, Doran recognized that it is important to involve experts and stakeholders from sectors outside of health in the design and conduct of research. In addition, she believes that the health care sector needs to do more thinking about what its endgame is. For example, if all of this work results in more money going to the health care sector so that interventions addressing housing and food insecurity need to be funded through health care because that is where all the money is, that is not really a win, said Doran. "I think we can invest in health care system–based social interventions, and I do think there is real value there, but how do we strike that balance with investing directly in social service systems?" she asked. "We need to do more thinking on what the best role is for us as the health care system."

DATA AND RESEARCH GAPS HINDERING POLICY DEVELOPMENT

Genevieve Kenney and Timothy Waidmann started their work on data and research gaps by assessing the role that Medicaid and Medicaid-managed care plans play in helping enrollees address their non-medical, health-related social needs and then identifying the driving forces behind the activities and investments that are occurring. As part of this effort, they conducted key informant interviews with Medicaid officials, managed care plan representatives, academics, national policy experts, and other key stakeholders from around the country. "We found a veritable explosion of innovation and activity, and many exciting examples have been shared today," said Kenney, "but we also found consensus that rigorous evidence is sorely lacking to guide investments in policy development."

Noting that Fichtenberg identified a number of unresolved issues and pressing research needs with respect to the specifics of the who, what, and how of screening for social needs, as well as on the effects of plan and provider screening for those needs, Kenney added that there is a need for a systematic assessment of the extent and nature of unmet health-related social needs at a population level for different subgroups in Medicaid and Medicare and writ large. "An analysis that gives us the grounding on where the major holes are in our safety net and where investments in other safety net programs is needed," said Kenney.

In the area of housing, only one in five people who meet the eligibility criteria for housing subsidies can actually get them given the constraints on public resources. This, said Kenney, raises fundamental questions

about how much payers and plans can do to help people address their housing needs, as well as other unmet social needs, if those funding constraints are not addressed. Moreover, if addressing how unmet social needs, individually and in combination, affect health is not challenging enough, it is important to understand the negative effects that unmet health-related social needs have on sectors outside of health care. This is where the "wrong pockets" problem comes into play consistently, which argues for the importance of understanding how addressing specific unmet health-related social needs affects different outcomes that matter over time, as well as how they affect spending across sectors and different levels of government, said Kenney. Given that current government budgeting time frames are often limited to a single year, understanding the medium- and long-term implications of these interventions will be critical if government is going to incentivize investments that have significant albeit longer-term payoffs over the intervention life cycle.

Kenney noted that the current approach to evaluating interventions to address social needs undervalues investments that produce positive effects and savings across multiple sectors and across different levels of government. Investments in systems that combine administrative data from different sectors such as Medicaid, child protective services, criminal justice, education, housing assistance, and income supports—an approach described earlier by Ross Owen—can provide information about the extent to which the same individuals are touched by more than one program and potentially more than one caseworker. They can also support assessments of how interventions in one sector affect cause and outcomes in other sectors, she said. This is an area that could use more research, both in terms of how such systems get launched and how they are maintained. It will also be critical to share knowledge and experiences regarding the design, implementation, and maintenance of these systems as a means to encourage more cross-sector approaches to investing in interventions.

Kenney suggested another area where the evidence base is scant and where there is a need to understand trade-offs. The issues concern payers and the designation of specific services that plans can cover and be reimbursed for versus letting plans decide for themselves how to use a flexible pot of money to meet the needs they observe in their clients. Data are also needed to guide how targeted investments have to be to create a sustainable, convincing business case for payers and plans. An important question here is whether substantial health care sector investments in addressing social needs will mean consistently deprioritizing investments that yield benefits and savings for other sectors or that take time to materialize. In particular, she is concerned that there is a real risk that investments in children will be deprioritized. She asked in her concluding comments:

> To the extent that health payers and plans do focus on helping their enrollees meet particular social needs that are pressing, is there a risk that other population groups will see their access to those services decline, and could it undermine the ability of payers and plans to meet the medical needs of their enrollees?

DISCUSSION

Seth A. Berkowitz opened the discussion by asking the panelists to talk about the changes needed to the current process of funding research. Doran said that if the goal is to have rigorous research on social needs and how to address them, the field needs rigorous funding similar to what other health and medical research gets. One impediment is that funding from the National Institutes of Health is organized largely by disease or body systems, and that is not how social needs work. There is also a need to bring people together to develop consensus guidelines around what measures researchers should be using and which outcomes should be prioritized, particularly given that these are the early days of social needs research so it would be good to get everyone on the same page now, said Doran.

Timothy Waidmann said in addition to learning more about what works in a clinical sense, there is the need to understand what works in terms of implementation. For example, the model developed by Len Nichols and Lauren Taylor that treats social determinants as a public good as a means of generating the will to finance healthy communities has theoretical promise and the support of many economists, but there needs to be research to see whether this approach is feasible (Nichols and Taylor, 2018). He noted that this approach could address the "wrong pockets" problem.

After saying she agreed with both Kenney and Waidmann, Fichtenberg said that more studies that included the same outcome could accelerate learning in this field and allow comparative effectiveness analyses. "This is something that funding agencies could help encourage or even require," she said. What would also help advance the field more rapidly would be for researchers to synthesize and share results. This is something that she and her colleagues at SIREN think about, but they have yet to come up with a great way of capturing lessons learned across the field, particularly regarding implementation. Waidmann offered one big concern:

> We think we can solve one problem, but if the real cause of a disparity in health outcomes between people with and without social needs is not the social need itself but the lack of resources to fill needs on one's own, we are not going to solve the health disparity problem by addressing one type of unmet need—even with a very targeted, well-designed,

and approved intervention because something else is just going to come along and rise up to take its place.

Doran commented that one reason to study return on investment to the health care system for interventions having to do with housing or food insecurity is that it might sway policy makers and others who believe in the "pull oneself up by one's bootstraps" philosophy and do not support those types of assistance on their own merit. "I think that for different parties you need to make different arguments, and different things are going to move and drive different people," she said. In the same vein, Fichtenberg said that she and her colleagues at SIREN are increasingly turning their attention to research showing the important role the health care sector plays at the community level. She noted that there are a number of health care organizations across the country that are looking at ways they can use their reserve dollars to invest in economic development and affordable housing. Health care organizations can also be strong advocates at local, state, and federal levels for changes to address the underlying social inequities that are creating the health-related social risks that contribute to escalating health care spending.

Ellen Marie Whelan from the Centers for Medicare & Medicaid Services (CMS) commented that many states are using their existing Medicaid authorities to provide home- and community-based services, nonemergency transportation, and food. She wondered if there was a way CMS could play a role in linking these efforts to researchers who could help the states figure out what is working and what is not and determine how to scale successful interventions. Fichtenberg replied that SIREN would be on board for that and would be more than happy to work with CMS to bring about that kind of connection. Kenney was also enthusiastic about the idea and suspected philanthropy might be interested in supporting that type of collaboration between practitioners and researchers. Doran pointed out that the best time to get a researcher involved is before the intervention is rolled out, and she also commented that there is a role for some entity to get the knowledge that researchers have into the hands of the states who are making Medicaid and other policy decisions.

8

Reflections on the Day

To conclude the workshop, Daniel Polsky provided a short summary of the two key messages he heard throughout the day. The first was there is underinvestment in social needs. Speaking from the perspective of an economist, he said it is clear there are many places where the market does not function properly, such as in the case of the "wrong pockets" problem that several panelists mentioned and the long time frame over which returns for many interventions are realized. Value-based payment, he said, can be a wonderful approach for addressing this underinvestment because economic incentives do work.

The second key message was that more research is needed, and there is an opportunity to think about infrastructure that could lead to more rigorous, evidence-generating research. He noted the panelists had many great ideas around evidence standards, using more administrative data, addressing privacy issues, and making linkages across disciplines and organizations.

Polsky then opened the floor to comments from the workshop participants. One unidentified participant from the American College of Preventive Medicine suggested there are many places where preventive medicine specialists could serve as the bridge between clinical care and community needs. This participant also proposed that one infrastructure investment would be to offer cross-training during residencies for new physicians who want to work at the intersection of prevention and population health.

Another participant suggested there are other approaches to proving an intervention is effective, such as realist evaluation and Shewhart

statistics, that are not time-consuming, randomized controlled trials. A third participant suggested looking at systems-based interventions that are not traditionally thought of as addressing social determinants of health. As a final comment, Uche Uchendu said she would like to see more overt emphasis on health equity and health disparities in this work because the assumption that addressing social need and social issues will take care of health equity issues is usually incorrect.

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Appendix A

Statement of Task

An ad hoc committee will plan and convene a 1-day public workshop that will explore the potential impact of addressing non-medical, health-related social needs on improving population health and reducing health care spending in a value-driven health care delivery system.

The workshop will feature invited presentations and discussion that will explore the following questions:

- What are effective practices to address non-medical, health-related social needs?
- What is the evidence base to support the use of these practices?
- What next steps or actions should be considered to further the dissemination and uptake of best practices?
- Are there methodologies for assessing the return on investment for these practices?
- What are the gaps in the evidence base and related research?

The planning committee will plan and organize the workshop, select and invite speakers and discussants, and moderate discussions. A proceedings of the presentations and discussion at the workshop will be prepared by a designated rapporteur in accordance with institutional guidelines.

Appendix B

Workshop Agenda

Investing in Interventions That Address
Non-Medical, Health-Related Social Needs

April 26, 2019

Keck Center Room 100 | 500 Fifth Street, NW | Washington, DC 20001

AGENDA

Workshop Objectives

Workshop presentations and discussion are expected to:

- Explore effective practices and the supporting evidence base to address non-medical, health-related social needs.
- Review assessments of the return on investment (ROI) for payers, health systems, and communities.
- Surface gaps and opportunities for research and steps that could help to further the understanding of the ROI in addressing non-medical, health-related social needs.

8:30 am **Welcome and Opening Remarks**
Daniel Polsky, Ph.D.
Bloomberg Distinguished Professor of Health Policy and Economics, Carey School of Business and Department of Health Policy and Management, Bloomberg School of Public Health, Johns Hopkins University

8:45 **Keynote Address**
Introduction: Daniel Polsky

Admiral Brett P. Giroir, M.D.
Assistant Secretary of Health, U.S. Department of Health and Human Services

9:15 **Panel 1: Setting the Stage**
Perspectives on investing in individuals' unmet social needs and community-level social determinants/Assessing value to stakeholders
Moderator: Daniel Polsky

Speakers:

John Auerbach, M.B.A.
President and Chief Executive Officer, Trust for America's Health

Dave Chokshi, M.D.
Chief Population Health Officer, New York City Health + Hospitals

Monica Bharel, M.D.
Commissioner, Massachusetts Department of Public Health

Discussion

10:00 **Panel 2: Housing Interventions**
Moderator: Maurice Jones, J.D.
President and Chief Executive Officer, Local Initiatives Support Corporation

Speakers:

Robin Hacke, M.B.A.
Executive Director, Center for Community Investment

Ross Owen, M.P.A. (*via videoconferencing*)
Health Strategy Director, Hennepin County Accountable Care Organization

Angela Mingo
Director of Community Relations, Nationwide Children's Hospital

Bechara Choucair, M.D.
Senior Vice President and Chief Community Health Officer at Kaiser Permanente

Discussion

11:00 **BREAK**

11:15 **Panel 3: Interventions Addressing Food Insecurity**
Moderator: Karen DeSalvo, M.D.
Professor of Medicine, Dell Medical School, The University of Texas at Austin, and Co-Convener, National Alliance to Impact the Social Determinants of Health

Speakers:

Seth A. Berkowitz, M.D.
Assistant Professor of Medicine, Division of General Medicine and Clinical Epidemiology, Department of Medicine, School of Medicine, University of North Carolina at Chapel Hill

Allison Hess
Vice President, Health and Wellness, Geisinger Health

Andrew Renda, M.D.
Associate Vice President, Population Health, Humana

Kate Leone, J.D.
Chief Government Relations Officer, Feeding America

Discussion

12:15 pm **LUNCH**
Food for purchase available in cafeteria on third floor or see restaurants list in your attendee packet

1:15 **Panel 4: Interventions Addressing Multiple Social Needs**
Moderator: Dave Chokshi

Speakers:

Shreya Kangovi, M.D., M.S.
Assistant Professor of Medicine and Executive Director, Penn Center for Community Health Workers

Sarah L. Szanton, Ph.D.
Health Equity and Social Justice Endowed Professor, Director of Center for Innovative Care in Aging, Johns Hopkins University School of Nursing
Joint Appointment with the Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health

Marsha Regenstein, Ph.D.
Professor, Department of Health Policy, Director of Research and Evaluation, National Center for Medical-Legal Partnership, The George Washington University

Stacy Tessler Lindau, M.D., MAPP
Founder and Chief Innovation Officer, NowPow, and Professor, Obstetrics and Gynecology and Medicine-Geriatrics, The University of Chicago

Discussion

2:30 **Panel 5: Return on Investment**
Moderator: John Auerbach

Speakers:

George Miller, Ph.D.
Fellow, Center for Value in Health Care, Altarum

Dawn Alley, Ph.D.
Director of the Prevention and Population Health Group, Center for Medicare & Medicaid Innovation, Centers for Medicare & Medicaid Services

Katherine Hobbs Knutson, M.D.
Chief of Behavioral Health, BlueCross and BlueShield of North Carolina

Discussion

3:30 **BREAK**

3:45 **Panel 6: Research Gaps**
Moderator: Seth A. Berkowitz

Speakers:

Caroline Fichtenberg, Ph.D. (*via videoconferencing*)
Managing Director, Social Interventions Research & Evaluation Network (SIREN), University of California, San Francisco

Kelly Doran, M.D.
Assistant Professor, Department of Emergency Medicine, and Department of Population Health, New York University School of Medicine

Genevieve M. Kenney, Ph.D.,
Co-Director and Senior Fellow, Urban Institute Health Policy Center

Timothy A. Waidmann, Ph.D.,
Senior Fellow, Urban Institute Health Policy Center

Discussion

4:30 **Reflections on the Day and Closing Remarks**
Moderator: Dan Polsky
Planning Committee members

5:00 **ADJOURN**

Appendix C

Speaker Biographical Sketches

ADMIRAL BRETT P. GIROIR, M.D. (Keynote), is the 16th U.S. Assistant Secretary for Health in the U.S. Department of Health and Human Services. He serves as the Secretary's principal public health and science advisor, as well as the Secretary's chief opioid policy advisor. He oversees the Office of the Surgeon General and the U.S. Public Health Service Commissioned Corps, as well as key public health and science offices that focus on transforming the current "sick care system" into a "health-promoting system." His office oversees many critical national initiatives, including an historic new plan to end the HIV epidemic in America, the Physical Activity Guidelines for Americans, the revised Common Rule, and a cross-agency effort to improve the outcome of patients with sickle cell disease. Previously, Dr. Giroir has served in numerous leadership positions in the federal government and in academic institutions. Most notably, he was the first physician to be appointed as an office director at the Defense Advanced Research Projects Agency (DARPA). As a pediatric critical care physician, Dr. Giroir cared for critically ill children for 14 years. He continues to bring that hands-on, patient-centered perspective to his work as the Assistant Secretary for Health, where his primary goal is leading America to healthier lives.

DAWN ALLEY, Ph.D., is Director of the Prevention and Population Health Group at the Center for Medicare & Medicaid Innovation (CMMI), which is responsible for innovative payment and service delivery models including the Accountable Health Communities model, the Million Hearts

Cardiovascular Risk Reduction model, and the Medicare Diabetes Prevention Program. Prior to joining CMMI, Dr. Alley served as Senior Advisor in the Office of the Surgeon General, where she oversaw implementation of the National Prevention Strategy. She has extensive expertise in population health and aging, with more than 50 publications in journals, including the *New England Journal of Medicine* and *JAMA*. Dr. Alley holds a Ph.D. in gerontology from the University of Southern California and received postdoctoral training in population health through the Robert Wood Johnson Foundation Health and Society Scholars program at the University of Pennsylvania.

JOHN AUERBACH, M.B.A., is President and Chief Executive Officer of Trust for America's Health, where he oversees its work to promote sound public health policy and make disease prevention a national priority. Over the course of a 30-year career he has held senior public health positions at the federal, state, and local levels. As Associate Director at the Centers for Disease Control and Prevention, he oversaw policy and the agency's collaborative efforts with the Centers for Medicare & Medicaid Services, commercial payers, and large health systems. He also served as the Acting Director of the Office for State, Tribal, Local, and Territorial Support. During his 6 years as the Commissioner of Public Health for the Commonwealth of Massachusetts, he developed innovative programs to promote health equity, combat chronic and infectious disease, and support the successful implementation of the state's health care reform initiative. He served as the President of the Association of State and Territorial Health Officials in 2010–2011. As Boston's health commissioner for 9 years, he directed homeless, substance abuse, and emergency medical services for the city as well as a wide range of public health divisions. During his tenure he was a board member of the National Association of County & City Health Officials. Mr. Auerbach was previously a professor of practice in health sciences and director of the Institute on Urban Health Research and Practice at Northeastern University and program director of one of the country's first community health centers.

SETH A. BERKOWITZ, M.D., M.P.H., is an Assistant Professor of Medicine at the University of North Carolina at Chapel Hill School of Medicine. He is a general internist and primary care doctor. He is also a trialist, clinical epidemiologist, and health services researcher who studies how health-related social needs lead to poor health outcomes. His goal is to develop interventions and care delivery models that address health-related social needs so that all individuals can live their healthiest lives.

MONICA BHAREL, M.D., M.P.H., appointed by Governor Charlie Baker in 2015, Massachusetts Public Health Commissioner, Dr. Bharel serves as the Commonwealth's chief physician. She is dedicated to reducing health disparities and developing data-driven, evidence-based solutions for keeping people healthy and is helping lead the state's aggressive response to the opioid crisis. In 2017, Massachusetts was among few states to see a reduction in opioid overdose deaths, thanks to a variety of new programs and initiatives. As Commissioner, Dr. Bharel oversees a public health workforce of nearly 3,000 and an expansive department addressing issues, from environmental health to injury prevention to infectious diseases. In 2017, Massachusetts was named the healthiest state in the nation by America's Health Rankings Report. Dr. Bharel is a board-certified internist who has practiced general internal medicine for more than 20 years, and has been recognized for her dedication to underserved and vulnerable populations. Prior to becoming Commissioner, she was Chief Medical Officer of Boston Health Care for the Homeless. She holds a Master of Public Health degree through the Commonwealth Fund/Harvard University Fellowship and a medical degree from the Boston University School of Medicine.

DAVE CHOKSHI, M.D., M.Sc., is Chief Population Health Officer at New York City Health + Hospitals (H+H)—the largest public health care system in the United States. He also serves as Chief Executive Officer of the H+H Accountable Care Organization. Dr. Chokshi's duties include leading a team dedicated to health system improvement, supervising initiatives on ambulatory care transformation, innovative care models, population health analytics, chronic disease prevention and management, and implementation research. His team was recognized with the 2017 Gage Award for Quality by America's Essential Hospitals. Dr. Chokshi practices primary care (internal medicine) at Bellevue Hospital and is a Clinical Associate Professor of Population Health and Medicine at the New York University School of Medicine. Dr. Chokshi's prior work experience spans the public, private, and nonprofit sectors, including as a White House Fellow at the U.S. Department of Veterans Affairs; positions with the New York City and State Departments of Health and the Louisiana Department of Health; at a startup clinical software company; and with the nonprofit Universities Allied for Essential Medicines. Dr. Chokshi has written on medicine and public health in the *New England Journal of Medicine*, *JAMA*, *The Lancet*, *Health Affairs*, *Science*, *The Atlantic*, and *Scientific American*. He serves on the Board of Directors for the Primary Care Development Corporation and the Essential Hospitals Institute. In 2016, President Obama appointed him to the Advisory Group on Prevention, Health Promotion, and Integrative and Public Health.

He trained in internal medicine at Brigham and Women's Hospital and was a clinical fellow at Harvard Medical School. During his training, he did clinical work in Botswana, Ghana, Guatemala, India, and Peru. He received his M.D. with Alpha Omega Alpha distinction from the University of Pennsylvania. He also earned an M.Sc. in global public health as a Rhodes Scholar at Oxford University, and graduated summa cum laude from Duke University.

BECHARA CHOUCAIR, M.D., is Senior Vice President and Chief Community Health Officer at Kaiser Permanente. He oversees the organization's national community health efforts and philanthropic giving activities aimed at improving the health of its 12.2 million members and the 68 million people who live in the communities it serves. Prior to joining Kaiser Permanente, Dr. Choucair was the Commissioner of the Chicago Department of Public Health for 5 years before serving as Senior Vice President, Safety Net and Community Health at Trinity Health. In 2018, Dr. Choucair was named #10 on *Modern Healthcare*'s list of the 50 Most Influential Health Executives in the United States.

KAREN DESALVO, M.D., M.P.H., M.Sc., is Professor of Medicine and Population Health at The University of Texas at Austin Dell Medical School and Co-Convener of the National Alliance to Impact the Social Determinants of Health. She is a nationally regarded physician executive working at the intersection of medicine, public health, and information technology to improve the health of all people with a focus on catalyzing pragmatic solutions to address all the social determinants of health. Dr. DeSalvo served as National Coordinator for Health Information Technology and Assistant Secretary for Health (Acting) in the Obama administration. Prior to joining the U.S. Department of Health and Human Services, she was Vice Dean for Community Affairs and Health Policy at the Tulane University School of Medicine and New Orleans Health Commissioner. She serves on the Medicare Payment Advisory Commission and is a Director on the Humana and Welltower Boards, on Verily's Advisory Board, and is President-elect of the Society of General Internal Medicine.

KELLY DORAN, M.D., M.H.S., is an Emergency Physician and Assistant Professor in the Departments of Emergency Medicine and Population Health at the New York University (NYU) School of Medicine. Dr. Doran studies how health care systems can better address homelessness and other social determinants of health. She has been active in homelessness-related work and research since serving as a Director of a student-run homeless shelter as an undergraduate at Harvard College. Dr. Doran

attended medical school at the University of Michigan, completed a residency in emergency medicine at NYU-Bellevue, and earned a master's degree in health sciences as a Robert Wood Johnson Foundation Clinical Scholar at Yale University. She previously served as a Senior Advisor to the New York State Department of Health on novel efforts to use Medicaid to fund supportive housing. Described in the *New England Journal of Medicine*, this work helped spark broad national interest in "housing as health care." Dr. Doran's current research includes analysis of linked patient-collected and shelter administrative data to develop a homelessness risk screening tool for emergency department patients, analysis of linked health care and shelter administrative data to predict health care costs associated with the aging homeless population, and development of homelessness prevention interventions for emergency department patients. Dr. Doran works clinically in the emergency department at Bellevue Hospital in New York City.

CAROLINE FICHTENBERG, Ph.D.,[1] is the Managing Director of the Social Interventions Research & Evaluation Network (SIREN) at the University of California, San Francisco, where she leads efforts to conduct, catalyze, and disseminate research advancing health care sector efforts to reduce health inequities by addressing social determinants of health. She brings to this position more than a decade of experience working to improve health and economic outcomes for America's most vulnerable families. She has previously served as Director of the Economic Mobility and Poverty Project at the Convergence Center for Policy Resolution; Director of Research at the Children's Defense Fund; Director of the Center for Public Health Policy at the American Public Health Association; Health Policy Advisor to Senator Harkin on the U.S. Senate Committee on Health, Education, Labor & Pensions; and Director of Epidemiology for the Baltimore City Health Department.

ROBIN HACKE, M.B.A., is Executive Director of the Center for Community Investment (CCI), which is dedicated to overcoming disinvestment and improving opportunity so everyone has a fair chance to lead a healthy and productive life. Working with cross-sector partnerships, innovative health institutions and local leaders, CCI helps ensure that all communities can unlock the capital they need to thrive. CCI is supported by the Robert Wood Johnson Foundation, The Kresge Foundation, and the John D. and Catherine T. MacArthur Foundation. CCI, housed at the Lincoln Institute of Land Policy, was incubated during Ms. Hacke's tenure

[1] Dr. Fichtenberg presented on behalf of Laura Gottlieb, M.D., M.P.H., Associate Professor of Family and Community Medicine at the University of California, San Francisco.

as a Senior Fellow at The Kresge Foundation. Previously, she served for 7 years as Director of Capital Innovation at Living Cities, where she managed capital deployment for the $80 million Integration Initiative and spearheaded creation of the Catalyst Fund. She has served as a Visiting Scholar at the Federal Reserve Bank of San Francisco, a consultant to major foundations, and a member of the Steering Committee for the Federal Reserve Bank of Boston's Working Cities Challenge. A former venture capitalist and investment banker with more than a decade of community investment experience, Ms. Hacke holds an M.B.A. from Harvard Business School and a B.A. from Harvard-Radcliffe College.

ALLISON HESS is the Vice President of Health Innovations for Geisinger. She has been part of the Geisinger family for 12 years and is responsible for the oversight and implementation of health and wellness programs for Geisinger patients and insured members, employees, and community members. She started her career in community health education/corporate wellness and has continued to expand to include community-based population health initiatives driven by data analysis and clinical outcome measurements. Ms. Hess earned her Bachelor of Science in health education with a concentration in psychology from Bloomsburg University. She is currently pursuing her M.B.A. and has been recognized for her leadership within the organization. She has been the recipient of several awards focused in various areas of health including health equity, worksite wellness, and supply chain. She has also been recognized nationally for her work with the Fresh Food Farmacy program. Ms. Hess has 20 years of experience in the health and wellness field. Her most recent work involves community-based strategies affecting food insecurity and other social determinants of health. She is deeply committed to the health and well-being of Geisinger patients, members, and communities.

KATHERINE HOBBS KNUTSON, M.D., M.P.H., is the Chief of Behavioral Health at BlueCross and BlueShield of North Carolina (BCBSNC). She is also an Adult and Child Psychiatrist and adjunct Assistant Professor at the Duke University School of Medicine. In her current role as the Chief of Behavioral Health at BCBSNC, she leads the strategy for value transformation for behavioral health, focusing on alternative payment methods, outcome measurement, and innovative service delivery models. At the Duke University School of Medicine, her clinical practice is in integrated care settings treating individuals with serious mental illness and substance use disorders. Prior to joining BCBSNC, Dr. Hobbs Knutson was the Chief Medical Officer at Alliance Behavioral Healthcare (2017–2018), Director of Community Psychiatry at the Children's National Health System (2014–2015), and Associate Medical Director for Psychiatry

for the Massachusetts Medicaid program (2013–2014). She has conducted health services research on psychiatry telephone consultation programs, behavioral health predictive modeling, and care management interventions that incorporate peer and family support.

MAURICE JONES, J.D., is the Chief Executive Officer of Local Initiatives Support Corporation. Previously, he was the Secretary of Commerce for the Commonwealth of Virginia, managing 13 state agencies focused on economic needs. He has also been second in command at the U.S. Department of Housing and Urban Development. He served as Commissioner of Virginia's Department of Social Services and Deputy Chief of Staff to then-Governor Mark Warner. He served at the U.S. Department of the Treasury during the Clinton administration, helping manage the CDFI fund. His experience includes top positions at the *Virginian-Pilot*, a Richmond law firm, and a private philanthropy investing in community-based efforts to benefit children.

SHREYA KANGOVI, M.D., M.S., is the founding Executive Director of the Penn Center for Community Health Workers, and an Associate Professor at the University of Pennsylvania Perelman School of Medicine. She is a leading expert on improving population health through evidence-based community health worker programs. Dr. Kangovi led the team that designed IMPaCT, a standardized, scalable community health worker program that has been delivered to nearly 10,000 high-risk patients and proven in three randomized controlled trials to improve chronic disease control, mental health, and quality of care while reducing total hospital days by 65 percent. The IMPaCT program has been disseminated to more than 1,000 organizations across the country and is being replicated by the U.S. Department of Veterans Affairs, state Medicaid programs, and large integrated health care organizations in rural and urban settings. Dr. Kangovi has authored numerous scientific publications in publications such as the *New England Journal of Medicine*, *JAMA*, and *Health Affairs*, and she received more than $20 million in funding, including federal grants from the National Institutes of Health and the Patient-Centered Outcomes Research Institute. Dr. Kangovi founded the Penn Center for Community Health Workers, a national center of excellence dedicated to advancing health in low-income populations through effective community health worker programs.

GENEVIEVE M. KENNEY, Ph.D., is a Senior Fellow and Vice President for Health Policy at the Urban Institute. She has conducted policy research for more than 25 years and is a nationally renowned expert on Medicaid, the Children's Health Insurance Program (CHIP), and broader

health insurance coverage and health issues facing low-income children and families. Dr. Kenney has led several Medicaid and CHIP evaluations and published more than 100 peer-reviewed journal articles and scores of briefs on insurance coverage, access to care, and related outcomes for low-income children, pregnant women, and other adults. In her current research, she is examining the implications of the Patient Protection and Affordable Care Act, how access to primary care varies across states and insurance groups, and emerging policy questions related to Medicaid and CHIP. She received a master's degree in statistics and a doctoral degree in economics from the University of Michigan.

KATE LEONE, J.D., is the Chief Government Relations Officer at Feeding America. She was previously Chief Health Counsel to Senate Democratic Leader Harry Reid (D-NV) where she handled health care and other issues from 2005 to 2016. She has also served as Counsel to Senate Democratic Leader Tom Daschle (D-SD), as General Counsel to Senator Jeanne Shaheen (D-NH), and as a Senior Policy Advisor on the Senate Democratic Policy Committee. Her previous experience includes working on health care matters as an attorney for the U.S. Department of Justice's Antitrust Division.

STACY TESSLER LINDAU, M.D., MAPP, tenured Professor of Obstetrics/Gynecology and Medicine-Geriatrics at The University of Chicago, is a population health scientist, a community-engaged researcher, and a practicing physician. She is Principal Investigator of the CommunityRx program of research. CommunityRx is a large-scale but low-intensity personalized community resource referral intervention, developed and tested with support from a Round I Health Care Innovation Award from the Center for Medicare & Medicaid Innovation (CMMI), the National Institutes of Health, and the Agency for Healthcare Research and Quality. CMMI funding had, as an expectation, the stipulation that awardees implement a sustainable business model. To this end, Dr. Lindau founded NowPow, LLC, and MAPSCorps, 501(c)(3), both headquartered on the South Side of Chicago where CommunityRx was developed. Before joining the faculty in 2002, Dr. Lindau was a Robert Wood Johnson Foundation Clinical Scholar and earned a master's degree in public policy at The University of Chicago. She is an Aspen Institute Health Innovator Fellow and serves on the Board of Overseers for the fellowship.

GEORGE MILLER, Ph.D., is an Altarum Institute Fellow and is affiliated with Altarum's Center for Value in Health Care, where he participates in the center's efforts to track national health spending and quantify a sustainable level of such spending. His work on the social determinants

of health has included directing a series of four grants from the Robert Wood Johnson Foundation (RWJF) to quantify the value of investments in nonclinical primary prevention from the perspectives of alternative stakeholders. He applied the methods developed under these grants in several analyses on topics including obesity prevention, smoking prevention, early education, trauma prevention, pediatric asthma interventions, and the use of long-acting reversible contraceptives. He is currently co-directing the second of two RWJF-funded efforts to apply these methods to estimation of the economic burden of childhood lead exposure and the value of exposure prevention and remediation initiatives. Dr. Miller earned B.S.E., M.S.E., and Ph.D. degrees in industrial and operations engineering (with emphasis on operations research) from the University of Michigan, where he subsequently served as an adjunct Assistant Professor. He is a Fellow of the Institute for Operations Research and the Management Sciences and a member of the Health Affairs Council on Health Care Spending and Value.

ANGELA MINGO serves as the Director of Community Relations for the Nationwide Children's Hospital. She is responsible for developing and managing strategic partnerships with external organizations. Ms. Mingo directs the community engagement efforts of the hospital and works closely with neighborhood and civic organizations. Prior to her position with Nationwide Children's Hospital, she served as community affairs director with Columbus City Council. Ms. Mingo earned bachelor's degrees in Portuguese and international relations as well as her master's in city and regional planning degree from The Ohio State University in Columbus, Ohio. Ms. Mingo's honors include Columbus Business First-Health Care Heroes Award.

ROSS OWEN, M.P.A., is the Health Strategy Director for Hennepin County (Minnesota). In this role he leads reform efforts to coordinate medical care and recognize social context in health care delivery and leads collaborative governance of the Hennepin Health Medicaid accountable care organization. Prior to joining Hennepin County, Mr. Owen worked at the Minnesota Department of Human Services (Minnesota's Medicaid agency) on health care payment and delivery system reforms for safety net populations. He has also worked as a Health Services Research Analyst and maintains an active engagement in quantitative research and health informatics. Mr. Owen earned a Master of Public Administration degree from the University of Oregon, and a Bachelor of Arts degree in political science from the University of Minnesota.

DANIEL POLSKY, Ph.D., is the Bloomberg Distinguished Professor of Health Policy and Economics at Johns Hopkins University in the

Bloomberg School of Public Health and the Carey Business School. From 2012 to 2019 he was Executive Director of the Leonard Davis Institute of Health Economics at the University of Pennsylvania. Dr. Polsky is known for his research on access to care, economics of the physician workforce, and economic evaluation of medical and non-medical, health-related interventions. He serves on the U.S. Congressional Budget Office's Panel of Health Advisors, the Pennsylvania Governor's Advisory Board on Health, and is a member of the National Academies of Sciences, Engineering, and Medicine's Health and Medicine Division Committee as well as its Board on Population Health and Public Health Practice.

MARSHA REGENSTEIN, Ph.D., is a Professor of Health Policy and Management at The George Washington University. She also directs the Milken Institute School of Public Health's Doctor of Public Health Program. Dr. Regenstein is the Director of Research and Evaluation for the National Center for Medical-Legal Partnership. She recently served as Principal Investigator for a Health Resources and Services Administration–funded evaluation of the Graduate Medical Education Teaching Health Center program created by the Patient Protection and Affordable Care Act. Along with dozens of other projects, Dr. Regenstein has served in leadership roles in four multisite quality improvement initiatives designed to improve the quality and accessibility of health care for low-income and underserved individuals.

ANDREW RENDA, M.D., M.P.H., is Associate Vice President, Population Health at Humana. His work includes leading insights, strategy, interventions, measurement and communications for Humana's Bold Goal strategy to improve health by 20 percent by addressing the social determinants of health. The Centers for Disease Control and Prevention's Healthy Days survey instrument is used as the primary means of assessing population health. This is supported by clinical leading indicators, business performance metrics, and a robust research agenda that drive insights and proof points on how best to improve population health. Previous roles have included advancing clinical models of care through development, implementation, and evaluation of population health initiatives aimed at preventing and delaying progression of chronic disease. Dr. Renda has a B.S. in psychology and biology from the University of Kentucky where he was a National Science Foundation Undergraduate Fellow. He received his medical degree and a diploma in clinical psychiatry from the Royal College of Surgeons in Ireland, followed by a master's in public health from Harvard University. He is a published author and speaker in the fields of population health, social determinants of health, and chronic disease.

SARAH L. SZANTON, Ph.D., ANP, FAAN, is the Health Equity and Social Justice Endowed Professor and Director of the Center for Innovative Care in Aging at the Johns Hopkins University School of Nursing. She holds a joint appointment in the Department of Health Policy and Management at the Johns Hopkins Bloomberg School of Public Health. She tests interventions to reduce health disparities among older adults. Her work particularly focuses on ways to help older adults "age in place" as they grow older. These include ways to improve the social determinants of health such as modifying housing and improving access to food. In 2016, she was named to the PBS Organization's "Next Avenue 2016 Influences in Aging," a list of thought leaders who are changing how we age and think about aging in America. Dr. Szanton completed undergraduate work in African American Studies at Harvard University and earned a bachelor's degree from the Johns Hopkins University School of Nursing. She holds a nurse practitioner master's degree from the University of Maryland and a doctorate from Johns Hopkins University. She is Core Faculty at the Center on Aging and Health, the Hopkins Center for Health Disparities Solutions, and Adjunct Faculty with the Hopkins Center for Injury Research and Policy. She has been funded by the National Institutes of Health, the Centers for Medicare & Medicaid Services' Innovation Center, the Robert Wood Johnson Foundation, the John A. Hartford Foundation, the Rita and Alex Hillman Foundation, and the AARP Foundation.

TIMOTHY A. WAIDMANN, Ph.D., is a Senior Fellow in the Health Policy Center at the Urban Institute. He has more than 20 years of experience designing and conducting studies on varied health policy topics, including disability and health among the elderly; Medicare and Medicaid policy; disability and employment; public health and prevention; health status and access to health care in vulnerable populations; health care utilization among high-cost, high-risk populations; geographic variation in health care needs and utilization; and the relationships between health and a wide variety of economic and social factors. Dr. Waidmann's publications based on these studies have appeared in high-profile academic and policy journals. He has also been involved in several large-scale federal evaluation studies of health system reforms, assuming a central role in the design and execution of the quantitative analyses for those evaluations. Before joining the Urban Institute in 1996, Dr. Waidmann was Assistant Professor in the School of Public Health and postdoctoral fellow in the Survey Research Center at the University of Michigan. He received his Ph.D. in economics from the University of Michigan in 1991.