

Strengthening Community-Clinical Linkages to Improve Health Outcomes: Convening Summary

EXECUTIVE SUMMARY

There is considerable evidence supporting the connection between patients’ unmet health-related social needs—like housing instability, food insecurity, and interpersonal violence—and poor health outcomes and increased healthcare utilization.^{1, 2, 3} Unmet health-related social needs may reflect the larger, overlapping social and economic determinants of health that create opportunities or barriers for a community to be healthy and well.⁴ The social determinants of health include factors such as healthy food availability, education quality, transportation options, and socioeconomic conditions, all of which fall outside the purview of a single sector or agency.⁵

Healthcare systems, providers, public and private health insurance carriers, and public health and social service agencies are actively addressing health-related social needs, albeit at different paces and stages. There are varying—although not necessarily mutually exclusive—reasons for building a portfolio that goes beyond clinical care and reaches into the community (known as building community-clinical linkages).⁶ These reasons may include anticipated cost savings, improved effectiveness or cultural competency of care, or maximization of public resources.

Figure 1: Approaches to addressing social determinants of health vs. health-related social needs



The Association of State and Territorial Health Officials (ASTHO), funded by the Centers for Disease Control and Prevention (CDC), convened public, private, and nonprofit leaders in March 2019. These leaders shared examples with each other of collaborations between healthcare and community-based organizations that address health-related social needs. Convening attendees shared with one another specific strategies related to partnership-building, data-sharing, and sustainability, which ASTHO has referred to as the essential elements of effective community-clinical linkages. These themes built upon emerging experiences identified at a previous convening on cross-sector partnership models.⁷

Cross-sector alignment may support initiatives that address health-related social needs in a coordinated and consistent fashion and ultimately advance population-wide prevention efforts that address social determinants of health (see Figure 1). Convening participants identified steps they can take to collectively advance broad social determinant of health improvements, like building community leadership and capacity, developing common metrics for the social determinants of health, and calling attention to long-term or multi-generational improvements in population health.

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INTRODUCTION

ASTHO, funded by CDC, convened public, private, and nonprofit leaders to share insights with one another on building linkages among health systems, public health, social services, and communities to improve health outcomes. The convening, which was held at CDC headquarters on March 6-7, 2019, included representatives from the Centers for Medicare and Medicaid Services' (CMS) [Accountable Heath Communities](#) (AHC) alignment track bridge organizations, public health and Medicaid leaders from states receiving AHC funds, health insurance companies, healthcare systems and providers, and philanthropies. Subject matter experts from academic institutions, federal agencies, and national organizations also attended to provide participants with expertise in areas of need, including partnership development and sustainability, data systems, and financing (see Appendix A).

This report provides a summary of the information shared at the convening, including several examples of successful and innovative collaborations between healthcare and community-based partners that address patients' health-related social needs, with a focus on transportation and food insecurity. Essential elements for effective community-clinical linkages include partnership-building, data-sharing, and ensuring sustainability. Speakers and participants discussed emerging strategies to build and sustain partnerships, facilitate cross-sector data sharing, and involve communities and community-based organizations in population health activities. Additional resources shared by convening participants are available in Appendix B.

CURRENT STATE: Community-Clinical Linkages to Address Health-Related Social Needs

Healthcare systems and insurance companies are increasingly recognizing the value of [partnering](#) with community-based organizations to address the health-related social needs of their patients.⁸ Participants at the convening shared insights that healthcare delivery systems are beginning to move beyond traditional settings to support linkages between their patients and non-clinical community resources to deliver more effective, culturally competent care and reduce healthcare expenditures. For example, healthcare providers are screening patients for health-related social needs and referring patients that screen positively to in-house or community-based social services (e.g., navigator assistance, emergency food or nutritional assistance from food pantries, home-delivered meals, or temporary housing).

As more community-clinical linkages are established and strengthened, convening participants indicated that robust evaluation is needed to measure the outcomes of such social interventions. These evaluations could assess health outcomes and cost. In addition, convening participants and speakers noted that it is important to ensure that community capacity can meet an increased demand for social services generated from a rising number of provider and healthcare system referrals.

Screening for Health-Related Social Needs and Aligning with Community Resources

The Center for Medicare and Medicaid Innovation (CMMI) within CMS is exploring opportunities to support providers in delivering whole-person care that addresses patients' full range of health needs. For example, CMMI's AHC initiative pays jurisdictions to test whether systematically screening for and addressing five health-related social needs reduces total healthcare costs or improves health outcomes. The AHC model is focusing on five health-related social needs (housing instability, food insecurity, transportation difficulties, utility assistance needs, and interpersonal safety) among populations that are dually eligible for Medicare and Medicaid. The AHC model funds [bridge organizations](#) that act as a hub to connect beneficiaries to community service providers. An evaluation will be completed after a five-year performance period in May 2022.⁹

Several AHC bridge organizations participating in the convening reported challenges ensuring that community resources are available when a beneficiary screens positive for a health-related social need. To address this, one bridge organization [Kentucky Consortium for Accountable Health Communities](#), is using the [Community Asset Registry for the Empowerment of Kentucky](#) (CARE KY), which is a real time, web-based platform that can search for free or reduced-cost social service programs across participating

In the Field: Intermountain Healthcare

Intermountain Healthcare and the [Utah Alliance for the Determinants of Health](#) are funding two demonstrations targeting Utah Medicaid beneficiaries in Washington and Weber Counties. Both counties have lower-than-average life expectancy, high behavioral health needs, and high emergency department usage for non-emergency needs. Intermountain serves as the anchor institution and will invest \$12 million over three years to screen select beneficiaries for the same health-related social needs as the AHC model using the AHC screening tool. Intermountain will work with community partners to provide service navigation, create individualized social care and treatment plans, and provide linkages to community resources.

counties. The consortium has enjoyed early success in connecting dually eligible populations with community resources.^{10, 11} CARE KY attributes this in part to diligence in understanding the unique needs of the community.

CMMI's Accountable Health Communities model is not the only model that addresses unmet health-related social needs. There are also numerous AHC-like initiatives outside of CMS's purview—often identified as “accountable communities for health”—that screen and refer individuals for health-related social needs and attempt to bridge the gap between needed and available community services. Research from the [Funders Forum on Accountable Health](#) at George Washington University has studied elements of effective accountable communities for health. In a presentation, a representative of the Funders Forum noted that early findings [indicate](#) that successful accountable communities for health build on prior experience working across sectors, suggesting that cross-sector relationships can be a critical type of infrastructure for this model. In order to scale efforts across jurisdictions, funders and “anchor institutions” (the institutions in a community—such as hospitals, universities, and nonprofits—that are established and tend not to move location) can consider targeting pilots and investments in communities where cross-sector partnerships are already in place.¹²

Interventions to Address the Relationship Between Food Insecurity and Adverse Health Outcomes

Speakers at the convening cited evidence-based research that indicates a substantial relationship between [food insecurity](#) and adverse health outcomes, including obesity and barriers to chronic disease self-management (see Appendix B). Furthermore, speakers at the convening indicated that access to nutritional food options is an [essential component](#) of food security.¹³ Speakers suggested that stakeholders may benefit from exploring policies and partnerships that address barriers that prevent healthy eating, such as affordability and availability of fresh and nutritionally dense foods.

Speakers highlighted effective interventions to address food insecurity and nutrition, which can include enrollment and navigation [assistance](#) for the [Supplemental Nutrition Assistance Program](#) (SNAP) and other nutritional programs, subsidization of [community-supported agriculture](#), the [provision](#) of healthy foods at hospital-based food pantries, [delivery](#) of healthy foods, and the creation of [medically tailored meals](#).^{14, 15, 16, 17, 18, 19} Health systems and other organizations are blending these interventions to meet the specific needs of local communities affected by high levels of food insecurity. Healthcare

In the Field: Humana and Aetna Partner with Meals on Wheels

Humana Inc. considers food insecurity to be a gap in care and responded by directly partnering with a community-based organization. Rather than creating its own meal delivery service, Humana joined [Meals on Wheels](#), which had existing infrastructure. Humana care managers identify members who need additional in-home support, and a Meals on Wheels volunteer visits for an hour each week. The visits offer an opportunity to screen for food insecurity, loneliness, and safety issues.

Aetna includes Meals on Wheels visits as a filed benefit under existing infrastructure through CMS. Aetna's [partnership](#) with Meals on Wheels aims to improve care coordination for high-risk and high-need Medicare and Medicaid populations. Meals on Wheels uses its technology platform to share information with Aetna case managers, so Aetna can better deliver clinical services and Meals on Wheels can connect members with additional community programs that address their health-related social needs.

organizations can also consider partnering with existing community-based organizations that are already trusted by community members. Finally, policymakers can focus on [streamlining eligibility](#) for SNAP to [expand access](#) to nutritional services.²⁰

Improving Access to Healthcare Services Through Transportation Interventions

Healthcare systems are partnering with transportation agencies and private companies to address [transportation](#) needs among high-risk patients, including seniors and individuals with disabilities (see Appendix B). Beyond improving patients' ability to access healthcare services, speakers at the convening indicated that transportation services led to improved patient satisfaction, reduced social isolation, and improved access to social services. Therefore, investments in a single health-related social need may generate positive outcomes for patients in other facets of their lives.

In the Field: MARTA, Atlanta Regional Commission, and Grady Health System

The Metropolitan Atlanta Rapid Transit Authority (MARTA) partnered with the Atlanta Regional Commission and Grady Health System to pilot a [Rides to Wellness](#) program. The pilot, funded by the Federal Transit Administration's Rides to Wellness program grant, trained participants to use public transportation more confidently, enrolled participants in reduced fare programs, and provided complimentary MARTA passes. The program engaged the community in three listening sessions. During the pilot, launched in November 2017, Grady Health System reported a 39 percent increased appointment attendance rate and a 40 percent lower no-show rate. Participants have also reported three fewer "unhealthy days" each month.

In the Field: Lyft and CareMore Health

Lyft and CareMore Health [partnered](#) to provide non-emergency transportation services for elderly patients.²¹ Nationally, 21 percent of Medicare beneficiaries do not drive and 3.6 million Americans miss healthcare appointments due to transportation barriers. This initiative reduced transportation wait times for CareMore beneficiaries by 45 percent, lowered individual ride costs 39 percent, and maintained a patient satisfaction rate of 97 percent.

ESSENTIAL ELEMENTS: Building Strong Community-Clinical Linkages to Address Health-Related Social Needs

Convening attendees represented health systems and community-based organizations that are pursuing cross-sector partnerships to address health-related social needs. During the convening, attendees and speakers highlighted what they considered as essential elements of strong community-clinical linkages. These elements include dedicated time and resources to build and maintain [partnerships](#), infrastructure to [share data](#) between partners and with the community, and movement from grant-funded pilots toward long-term sustainable [financing mechanisms](#) (see Appendix B).

Effective Partnerships

Several speakers commented that effective cross-sector partnerships require investments of time, energy, and resources. High-performing partnerships are characterized by a shared vision or understanding of the goal, as well as a commitment to shared planning. Successful partnerships often work through an initial, discrete challenge and then build from that success.

Convening participants expressed that community participation can help ensure that interventions are culturally appropriate and responsive to the needs of the target population and that it is a critical element to sustained partnerships. Convening participants emphasized that community representatives must be included in decision making and priority-setting structures. Community health workers and social service providers can share valuable community experiences with healthcare delivery systems. Throughout the convening, speakers—including representatives of national public health associations—repeated that community engagement requires deliberate investments in staff time and ongoing interaction.

Speakers commented that effective partnerships can vary in structure, and discussed one of [distributed leadership](#), where roles and leadership are distributed according to the objectives of the group and the regional ecosystem.²² For example, cross-sector partners may find value in considering the target population of an intervention (such as seniors) and then thinking strategically about which agency would be an appropriate anchor institution (such as the [Area Agency on Aging](#)).²³ [Research](#) from University of California, Berkeley indicates that high-performing partnerships between health systems and communities—as measured by low readmission rates and low preventable hospitalizations—had networks in place that included social services as a central stakeholder, rather than just focusing on partners from the clinical community.²⁴

Both speakers and participants noted that common barriers to successful partnerships include inadequate infrastructure, insufficient funding, poor leadership, lack of authority to enable action, and political resistance.²⁵ Evaluating partnerships may provide useful information on the role of collaboration and its impact on patient satisfaction and healthcare costs.

Data Sharing

Speakers stated that sharing data across sectors and with [community-based organizations](#) may facilitate the development of [whole-person](#) systems of care and advance program, policy, and environmental change.^{26, 27} Speakers indicated that [cross-sector data](#) can help map available community resources, target new services based on community need, monitor and evaluate the effectiveness of community-wide interventions, and illustrate root causes of health inequities at the community-level (see Appendix B).

Convening participants stated that strong cross-sector data coordination requires aligned incentives and interoperability with and among community-based organizations. It is equally important for community-based organizations and social services to share data with one another as it is to share data with a health system or anchor institution. However, community-based and social service providers often do not have the same capacity with respect to data infrastructure, staff, or resources.

There are examples, however, of communities who are moving forward with sharing data despite this disparity in resources. For example, the nationwide [Data Across Sectors for Health](#) (DASH) initiative aims to collect information from communities who are successfully sharing data across sectors to improve community health.²⁸ DASH is creating a body of knowledge on barriers, promising practices, and indicators of progress for multi-sector data-sharing, and provides webinars and mentorship opportunities for cross-sector partners. In addition, [Pieces Technologies, Inc.](#) is developing software for community-based organizations that supports interoperable case management systems with hospitals and health plans and manages bidirectional referrals.²⁹ Convening speakers on a data panel suggested

that communities and healthcare partners can look for creative opportunities to better utilize existing and available data, while possibly reducing resources spent on patient intake processes.

In addition, convening speakers noted that cross-sector partners may be well served by creating memoranda of understanding and formalized data use agreements that create a governance structure and framework for sharing data. Leaders of cross-sector partnerships may consider reviewing existing [research and resources](#) that break down misconceptions about patient privacy (see Appendix B).

Sustainable Financing and Resources

Participants noted that interventions that address health-related social needs are commonly financed through grant funding. Participants continually identified the need to move toward long-term, sustained financing. Emerging financing vehicles and payment mechanisms can be deployed to make improvements in population health. [Alternative payment models](#) that utilize population-based payments (like global budgets) are a departure from traditional fee-for-service structures and can be used to integrate finance and delivery arrangements to advance community health initiatives.³⁰ Multi-sectoral funds can be [blended](#) (meaning that funds from multiple funding streams are combined into one pot, and services are financed out of that pot without distinction regarding where original funding came from) or [braided](#) (meaning that funds from multiple funding streams are combined, with careful accounting for how dollars from each funding source are spent).³¹ In addition, speakers noted that financing vehicles like charitable hospital community benefit, pay for success or social impact bonds, community development financial institutions, and prevention and wellness trusts may be sustainable financing alternatives.³²

Return on Investment of Cross-Sector Partnerships

The value of cross-sector interventions is generally viewed as a combination of reducing costs and improving health outcomes. The Commonwealth Fund speakers stated that community-based organizations often struggle with how to calculate the significance of their role in achieving that value, especially in the context of establishing appropriate reimbursement for participating in an initiative to address health-related social needs. The Commonwealth Fund therefore developed a [return on investment calculator](#), which can be a tool to estimate an initiative's baseline, impact of service cost and utilization, and results.

The current shift in healthcare to reimburse for value rather than volume highlights the importance of addressing health-related social needs. However, speakers on a panel of private insurance companies suggested that insurers and providers will need incentives and infrastructure to demonstrate the value proposition of investments in community-clinical linkages.

As cross-sector partners pursue various financing mechanisms, convening participants stated that an essential consideration for sustainability is determining how to equitably reinvest generated savings back into the community to build capacity at the local level. An academic researcher at the convening commented that partnerships need to be mutually advantageous in both return and risk among partners. For example, risk-based, shared-savings models that include healthcare and community-based organizations in the network are more likely to succeed when community-based organizations are eligible to earn incentive funds for improving health outcomes.

WHERE TO GO FROM HERE: Accelerating Multi-Sector Collaborations to Address the Social Determinants of Health

In order to move prevention upstream and improve the health of an entire community or population, convening participants stated that multi-sector partnerships are an essential ingredient to addressing underlying social and economic conditions that impact health (such as institutional racism, lack of available and affordable housing supply, or poverty).

The healthcare system has acknowledged and is taking action towards [mediating](#) the unmet health-related social needs of individual, often high-risk, patients.³³ As the healthcare system continues to forge multi-sectoral partnerships with public health and non-health sectors, there is an opportunity for leadership across sectors to work together to make advances toward addressing individual health-related social needs and simultaneously improving community-wide social determinants of health.

Building Community Capacity and Leadership in Partnership with Public Health

Convening participants generally acknowledged that community leadership is critical to ensure that any intervention is responsive to the community's identified needs and is accessible to community members. Interventions to improve health-related social needs often include opportunities for [community-level engagement](#) and feedback.³⁴ However, participants stated that multi-sector partnerships that advance the social determinants of health can be most effective and responsive to local priorities when the target community or population has a [leadership role](#).³⁵ For example, the Rhode Island Department of Health funds and provides technical assistance to geographically-based [Health Equity Zones](#), which pursue community-led processes to identify community needs and approaches to prevent chronic disease, improve birth outcomes, and improve neighborhoods' socioeconomic and environmental conditions.³⁶

In addition, there was general agreement among convening participants that community-based organizations can build capacity to engage with health systems in contractual negotiations. Community-based organizations could benefit from technical assistance to develop their value proposition with respect to investment and reimbursement negotiations. Some stakeholders expressed concern that without the ability to establish their value and successfully negotiate reimbursement, community-based organizations and social services may become "medicalized" (owned by healthcare delivery systems and operated in a way that advances medical priorities, not community-driven priorities).

In the Field: Live Well San Diego

[Live Well San Diego](#) is a coalition with a shared mission to help communities build better health, live safely, and thrive. Early projects aimed to combat hypertension and obesity through community partnerships. The local health and human services agency served as the central convener to align the strategy and measures between partners, but each stakeholder used a hub and spoke model to determine its own unique skills and activities. The number of partners has grown as other organizations recognize the community health improvements, like a 20 percent reduction in childhood obesity in the Chula Vista school district after six years, and a 14 percent lower heart attack rate than anywhere else in the state.

State health officials who attended the convening noted that public health departments are essential and valuable partners for healthcare delivery systems because public health leaders can build opportunities for cross-sector, community-led collaborations. In particular, the public health system is well positioned to prevent siloed or “medicalized” community resources. State and local health agencies are closely engaged with the community and are available to providers, patients, health systems, and community-based organizations alike. State and territorial health agencies are well equipped to collect and manage data and navigate contractual relationships, which may help centralize health agencies in efforts to scale promising community-wide interventions. [Community development financial institutions](#) may also be valuable partners to strengthen community capacity by providing additional financial resources to communities.³⁷

Measuring Long-Term or Multi-Generational Population Health Improvements

A panel of private insurance companies indicated that, even as the healthcare system advances toward value-based payments, providers and insurance companies face certain constraints regarding how they conduct business. Often, the value proposition of a social intervention is calculated in terms of short-term health improvements or reduced healthcare spending and utilization—which can lead to relatively short-term cost savings and investments. Insurance companies and the healthcare delivery system can achieve these goals by addressing health-related social needs at an individual level, often among the highest healthcare utilizers.

However, the same individual-level social needs will likely continue to reappear among patient populations unless attention and coordinated action are also focused on upstream, community-wide prevention efforts that can better achieve long-term improvements in population health. Convening participants generally indicated that long-term or multi-generational evaluations would be beneficial, especially to evaluate improvements in health equity and decreases in health disparities not traditionally captured in economic return on investment studies.

Research from Behavioral Economics

The meeting’s keynote speaker, a researcher from the University of Pennsylvania, said that lessons from behavioral economics can help transform the health system in a way that improves population health outcomes and moves toward value by influencing behavior change among both patients and providers. According to the speaker, health systems can:

- Change defaults from “opt in” programs to “opt out” programs so that patients take advantage of offered services at higher rates.
- Invest time and attention in simplifying complicated processes, such as social service navigation.
- Reduce out-of-pocket costs and provide positive incentives.
- Ensure payment transformation efforts that set reasonable goals that can be achieved. The focus of systems change should be on improvement, not perfection.

AREAS FOR FUTURE EXPLORATION AND RESEARCH

Participants noted that population health improvement strategies may vary according to the community context and social needs of a given population or sub-population. Meanwhile, it will be important to identify the fundamental factors of success common across AHC-like initiatives to serve as a basis for

technical assistance and to scale promising models. Participants identified the following areas for future exploration:

Common Metrics to Measure Health-Related Social Needs and Social Determinants of Health

Many healthcare systems are screening patients for health-related social needs, including transportation and nutrition. Public health and other stakeholders similarly hold a wealth of data on the social determinants of health but, there is a [wide variety of indicators collected](#) and little alignment among organizations and sectors (see Appendix B). This can hamper efforts to compare the outcomes of interventions that address the social determinants of health or to facilitate cross-sector information-sharing.

Methods of Risk Stratification for Communities that Have Significant Health-Related Social Needs

Cross-sector partners may maximize the effectiveness of their resources and improve health outcomes by stratifying a population by risk and targeting certain types of interventions toward specific segments of a community. For example, convening speakers indicated that low-risk populations might receive more benefit from preventive programs than higher-intensity interventions. Further research is needed to understand how aggressively to intervene—and at what stage, and for how long—across different population groups. In addition, future study could investigate the long-term outcomes of various population health interventions to assess whether different approaches (e.g., those based on age or cultural background) affect individuals differently and study how long specific populations benefit from an intervention.

Exploration of the Unique Needs of Rural Communities

Provider and social service networks vary between urban and [rural communities](#), as can factors such as the availability of broadband internet and health workforces.³⁸ In addition, rural community-based organizations and health systems may face unique challenges to establish and maintain partnerships due to a lack of proximity.³⁹ As researchers evaluate common factors of success and failures across AHC-like interventions, specific attention paid to rural communities could be beneficial.

CONCLUSION

This convening brought together stakeholders across sectors to share their experiences with one another in forming and sustaining partnerships that address health-related social needs. Many participants suggested that system-level thinking can change not just the symptoms of unaddressed social needs but also the causes, which cannot be addressed through healthcare service delivery alone. The broad health system—encompassing healthcare, public health, insurance companies, and social services—recognizes the value of investing in community-level resources and relationships in order to facilitate lasting change. Many participants commented that all partners must work to intentionally design and maintain cross-sector partnerships. Participants also suggested that sustainable funding strategies can ensure lasting impact beyond a single pilot or grant program. Stakeholders agreed on high-level direction and the importance of community-clinical linkages, and were excited by the opportunity to share innovative approaches to address social needs to improve health outcomes. At the same time, the practical realities of how to operationalize, spread, or scale this work continue to be important challenges that stakeholders are eager to tackle within their communities.

The remainder of this document includes resources submitted by convening participants to benefit other interested stakeholders. Topics span behavioral economic principles in health insurance benefit design, cross-sector data-sharing models, partnership-building strategies, food security, and transportation.

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APPENDIX A: Participating Organizations

ASTHO thanks the 100+ organizations and agencies, who participated in the convening:

- [Aetna](#)
- [American Hospital Association](#)
- [AmeriHealth Caritas DC](#)
- [Anthem](#)
- [ARCHI Collaborative](#)
- [Arizona Department of Health Services](#)
- [Baltimore City Health Department](#)
- [Blue Shield of California Foundation](#)
- [BUILD Health Challenge](#)
- [California Accountable Communities for Health Initiative](#)
- [Camden Coalition of Healthcare Providers](#)
- [CareMore](#)
- [Care New England Health System](#)
- [Centene](#)
- [Center for Medicaid and CHIP Services](#)
- [Center for Medicare and Medicaid Innovation](#)
- [Centers for Disease Control and Prevention](#)
- [Cigna](#)
- [Colorado Department of Public Health and Environment](#)
- [Commonwealth Fund](#)
- [Connecticut Department of Social Services](#)
- [Danbury Hospital](#)
- [Data Across Sectors for Health](#)
- [Delta Health Alliance, Inc.](#)
- [Denver Regional Council of Governments](#)
- [Federal Transit Administration](#)
- [Feeding America](#)
- [Funders Forum on Accountable Health](#)
- [Georgia Health Policy Center](#)
- [Grady Health System](#)
- [Hawaii Department of Human Services](#)
- [HealthBegins](#)
- [Health Net of West Michigan](#)
- [Health Quality Innovators](#)
- [Health Resources and Services Administration](#)
- [Heluna Health](#)
- [Humana](#)
- [Institute for Healthcare Improvement](#)
- [Intermountain Healthcare](#)
- [Kaiser Permanente](#)
- [Kentucky Cabinet for Health and Family Services](#)
- [Kentucky Department for Public Health](#)
- [Life Connect Health](#)
- [Louisiana Department of Health](#)
- [Lyft](#)
- [Maryland Department of Health](#)
- [Merck and Co.](#)
- [Michigan Department of Health and Human Services](#)
- [Mississippi Department of Human Services](#)
- [MyHealth Access Network, Inc.](#)
- [National Association of County and City Health Officials](#)
- [National Association of Medicaid Directors](#)
- [National Center for Mobility Management](#)
- [National Quality Forum](#)
- [Network for Public Health Law](#)
- [New Jersey Department of Health](#)
- [New Mexico Department of Health](#)
- [New Mexico Department of Human Services](#)
- [New York Health + Hospitals](#)
- [New York State Department of Health](#)
- [Northwest Colorado Health](#)
- [Novartis](#)
- [Office of the U.S. Surgeon General](#)
- [Oklahoma Health Care Authority](#)
- [Oklahoma State Department of Health](#)
- [Oregon Health & Science University](#)
- [Parkland Center for Clinical Innovation](#)
- [Pennsylvania Department of Public Welfare](#)
- [Pieces Technology, Inc.](#)
- [Pool Health Care Trust](#)
- [Presbyterian Healthcare Services](#)
- [Primary Care Development Corporation](#)
- [Purpose Built Communities](#)
- [Reading Hospital](#)

- [Reinvestment Partners](#)
- [ReThink Health](#)
- [Rhode Island Department of Health](#)
- [Rhode Island Health and Human Services](#)
- [Robert Wood Johnson Foundation](#)
- [Rocky Mountain Health Plans](#)
- [Root Cause Coalition](#)
- [San Diego Health and Human Services Agency](#)
- [Social Interventions Research and Evaluation Network](#)
- [St. Joseph's Hospital & Medical Center](#)
- [Tennessee Department of Health](#)
- [Texas Department of State Health Services](#)
- [Texas Health and Human Services Commission](#)
- [The Health Collaborative](#)
- [The Kresge Foundation](#)
- [The New York and Presbyterian Hospital](#)
- [Trust for America's Health](#)
- [UnitedHealthcare](#)
- [United Way of Greater Cleveland](#)
- [University of California, Berkeley School of Public Health](#)
- [University of Kentucky Research Foundation](#)
- [University of North Carolina School of Medicine](#)
- [University of Pennsylvania](#)
- [U.S. Department of Agriculture](#)
- [U.S. Department of Health and Human Services' Office of the Assistant Secretary for Health](#)
- [U.S. Department of Housing and Urban Development](#)
- [Utah Department of Health](#)
- [Virginia Department of Medical Assistance Services](#)
- [W.K. Kellogg Foundation](#)

APPENDIX B: Additional Research and Resources

CONTENTS

The following resources were identified by convening speakers and participants for the benefit of other interested stakeholders. The resources below include academic research articles, toolkits and resource guides, and case examples of community-clinical collaborations in the field. The resources and content listed below should not be construed as an endorsement by the CDC, HHS, or the U.S. Government.

BEHAVIORAL ECONOMIC PRINCIPLES IN BENEFIT DESIGN AND PROVIDER ENGAGEMENT

A Pragmatic Trial of E-Cigarettes, Incentives, and Drugs for Smoking Cessation

Halpern SD, Harhay MO, Saulsgiver K, Brophy C, Troxel AB, Volpp KG (June 2018). "A Pragmatic Trial of E-Cigarettes, Incentives, and Drugs for Smoking Cessation." *The New England Journal of Medicine*, 378(24): 2302-2310. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/29791259>

Mass Customization for Population Health

Volpp KG, Krumholz HM, Asch DA (May 2018). "Mass Customization for Population Health." *JAMA Cardiology*, 3(5): 363-364. Available at: <https://jamanetwork.com/journals/jamacardiology/article-abstract/2673605>

Nudge Units to Improve the Delivery of Healthcare

Patel MS, Volpp KG, Asch DA (Jan. 18, 2018). "Nudge Units to Improve the Delivery of Health Care." *The New England Journal of Medicine*, 378: 214-216. Available at: <https://www.nejm.org/doi/full/10.1056/NEJMp1712984>.

The Role of U.S. Health Plans in Identifying and Addressing Social Determinants of Health

Heisler M, Navathe A, DeSalvo K, Volpp KGM (2018). "The Role of U.S. Health Plans in Identifying and Addressing Social Determinants of Health: Rationale and Recommendations." *Population Health Management*, Vol. 00, No. 00. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/30513072>

COMMUNITY MODELS

A Common Framework for Assessing Accountable Communities for Health

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