# Workshop on Housing and Obesity: Gaps, Opportunities, and Future Directions for Advancing Health Equity

Sponsored by the National Institutes of Health, Centers for Disease Control and Prevention, and U.S. Department of Housing and Urban Development

Virtual Meeting November 14–15, 2022

#### **FINAL SUMMARY**

#### **Executive Summary**

This two-day, virtual workshop—sponsored by the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), and the U.S. Department of Housing and Urban Development (HUD)—was free and open to the public. The goal of the workshop was to accelerate research on the role of housing insecurity (including housing affordability, quality, stability, and its neighborhood context) and obesity-related health disparities across the life span. It included discussions on various interventions to address housing insecurity and on health behaviors, environmental factors, and other pathways that increase risk for obesity among those who experience housing insecurity. The meeting brought together researchers, leaders, interest groups, and experts from a range of disciplines, including housing, obesity, health disparities, health equity, public health, and other relevant fields. More than 160 individuals attended each day of the workshop. The event featured panel presentations and discussions in addition to early career investigator breakout sessions. Engaging, interactive listening sessions were held on the second day to identify key research questions for advancing research priorities relevant to diverse sectors. Participants also identified opportunities for establishing new research partnerships and collaborations across federal, regional, and local housing programs with the public health and health care sectors.

#### Overview

The purpose of this workshop was to identify the state of the housing, obesity, and health equity fields, particularly the role of housing insecurity in behaviors and other pathways that may increase the risk for obesity-related health disparities across the life span. A major emphasis was placed on interventions designed to address housing insecurity and their implications for obesity. These interventions were applicable at the federal, regional, and local sectors and within the health care sector. Gaps challenges and research opportunities were identified in each area of discussion.

The goals of this workshop were to—

- Accelerate research on the role of housing insecurity—including housing affordability, quality, stability, and its neighborhood context—in behaviors and other pathways underlying risk for obesity-related health disparities across the life span.
- Emphasize existing research that connects housing policies and programs with obesity,
- Address methods for housing and obesity research, including study design, measures, data linkages, and analytic approaches.
- Highlight novel interventions focusing on the housing sector with the potential to improve health outcomes.

The workshop also sought to identify partnerships and opportunities to leverage research opportunities and programs available or supported through the NIH, CDC, and HUD. Housing insecurity aligns with the goals of NIH's Obesity Research Task Force (co-chaired by directors of the National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK], the National Institute of Heart, Lung, and Blood (NHLBI), and the Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD]), as well as with NIH's Minority Health and Health Disparities Strategic Plan 2021–2025. The CDC is similarly committed to reducing the risk of and inequities in obesity. Through resources such as the Guide to Community Preventive Services, the CDC helps to build the evidence to determine how to change policies and practices—including those around housing and other social determinants of health—in ways that improve the health of communities. Finally, HUD has historically focused on brick-and-mortar programs—the physical homes in which people reside and ways to make these homes affordable to individuals and families; however, HUD also sees housing as an important nexus for health promotion and health care delivery through its research, demonstration projects, and evaluation efforts, which include health as an outcome measure.

#### Introduction to Obesity, Housing, and Health Equity

Overweight and obesity represents a challenging disease with more than 41.9 percent of American adults and 19.7 percent of children ages 2–19 having obesity (<u>Stierman et al., 2021</u>). Moreover, the burden of obesity is highest in individuals who are more likely to experience health disparities, including individuals from racial and ethnic minority groups and people with lower socioeconomic status (<u>Peterson et al., 2019</u>).

Social determinants of health (SDOH), as defined by the World Health Organization, 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 ... includ[ing] economic policies and systems, development agendas, social norms, social policies and political systems." As one of several SDOH, housing security—including its affordability, quality, stability, and its neighborhood context—is a contributor to the burden of obesity through multiple interacting mechanisms at the individual, interpersonal, community, and societal levels.

Housing insecurity is an increasingly serious challenge in the United States, with millions of households unable to afford rent and utilities, experiencing frequent moves, living in low-quality housing, and residing in under-resourced neighborhoods. In 2021, nearly one third of U.S. households—an estimated 40.6 million—spent more than 30 percent of their income on

housing (<u>Whitney, 2023</u>). Housing insecurity is rooted in the legacy of historical discrimination, including redlining, and sustained by contemporary systemic racism in ways that drive present-day residential segregation; disparities in homeownership; and housing, wealth, and other inequities. Such forces are also associated with neighborhood disinvestment, which results in food deserts and food swamps, lack of parks and green space, adverse environmental toxin exposures, and poorer transportation systems among other risk factors.

#### Housing, Obesity, and Health Equity

The purpose of this session was to establish the link between housing insecurity and the factors (personal, interpersonal, cultural, and societal, including the housing environment) that drive obesity-related inequities in diverse populations. Panelists emphasized the need to fully understand the connections between SDOH and obesity, as well as its biological underpinnings guided by health equity frameworks, such as the <a href="American Heart Association's Health Equity-focused Social Determinants of Health Framework">Health Equity-focused Social Determinants of Health Framework</a> or the <a href="National Academy of Medicine's Getting to Equity in Obesity Prevention: A New Framework">New Framework</a>. Additional rigorous studies that include high-quality data on health and housing insecurity, involve multidisciplinary teams, and employ mixed methods and qualitative research will be essential to fully understand how underlying determinants and risk factors, as well as public policies, drive obesity-related health inequities. Panelists also highlighted that the surge in housing insecurity associated with the COVID-19 pandemic led to policy innovation that appeared to improve access to several community-level resources in the short term; however, additional research and follow-up will be essential to determine whether and to what extent pandemic-related policy interventions translated into health outcomes and whether outcomes are equitable.

Discussion highlighted the potential for partnerships with advocates and community groups in the conduct of housing-related research. One such opportunity includes the NIH Common Fund program Community Partnerships to Advance Science for Society (ComPASS), which calls for community-driven, community-led health equity and structural intervention; however, other NIH, HUD, and CDC opportunities should be explored. Panelists also underscored the need to include the voices of people with lived experience of housing insecurity to inform research questions and measures.

#### Research Gaps and Opportunities

- Understand more fully how household housing insecurity and other SDOH and social needs intersect to influence obesity-related behaviors and risk for obesity, including biological, physiological, psychosocial, and other pathways.
- Consider variability across the life span in diverse groups, including multigenerational and lifetime influences, recognizing the importance of an asset-based focus.
- Explore the role of housing insecurity and adverse or under-resourced neighborhood environments and how they intersect to influence risk for obesity during critical periods, such as pregnancy, early childhood, adolescence, and older adulthood.
- Conduct longitudinal studies to investigate the connections between the neighborhood, food, environment, community, societal, and structural factors and rates of obesity.

#### History of Housing, Structural Racism, and the Current Housing Context

Although the affordable housing crisis is widespread and is a problem for people of all racialized and ethnic groups, it disproportionately impacts people of color. These disparities reflect the long history of structural racism and racist housing policies in this country. As one notable example, beginning in the 1930s, official government policies classified specific neighborhoods with significant numbers of households from racial and ethnic minority groups and low-income residents as "hazardous" to investment, resulting in the denial of mortgages, business loans, and other financial services. These discriminatory lending practices then exacerbated residential segregation by race and provoked urban decay. More recently, discriminatory or "predatory" lending policies, including sub-prime loans, have led to mortgage borrowers from racial and ethnic minority groups being charged higher interest rates than White borrowers. These racial disparities that persist today are reflected across multiple housing dimensions, from homeownership rates, housing cost burden, segregation in under-resourced neighborhoods to homelessness. Disparities in homeownership are at the root of racial wealth inequities, with these inequities in homeownership and wealth limiting family support for making down payments, attending college, and starting new businesses.

Over the past few decades in the United States, housing costs have also increased dramatically, and new home production has not kept pace with demand. The lack of housing supply reflects, in part, zoning codes, building codes, and historic preservation policies, as well as political forces limiting access to housing and communities. As communities and regions across the country begin to implement new approaches to expand the supply of affordable housing, a variety of research opportunities, particularly natural experiments, may be available.

#### Research Gaps and Opportunities

- Understand how changes in local government regulations (e.g., zoning codes, building codes, historic preservation policies) influence affordable housing supplies, walkability and access to services, community demographics, and, in turn, health and health behaviors.
- Explore how housing-related policy changes affect the local environmental context—such as the food, transportation, and built environment—in diverse settings, such as rural, urban, and suburban areas.
- Evaluate how and why local stakeholders and interactions with developers and planners make the creation of affordable housing more challenging.
- Examine how the interaction of federal, state, and local policy changes affects the housing supply, community stability, and neighborhood context regarding obesity and related behaviors, including such factors as displacement and gentrification.
- Evaluate how policy affects residential displacement and community stability and its effects on populations at risk for obesity.

#### Introduction to Federal Housing Assistance Programs and Other Research Opportunities

HUD administers programs that provide housing assistance and promote community with a mission of creating strong, sustainable, and inclusive communities and quality affordable homes for all. Housing assistance programs include Housing Choice Vouchers, which provide subsidies for individuals to rent homes on the private market; public housing, in which the units are owned and operated by local housing authorities; and multifamily housing where the rental assistance is tied to the housing unit. Taken together, this housing assistance provides a critical safety net for approximately 10 million individuals with low incomes. However, unlike Medicare or Medicaid, housing assistance is not an entitlement program and only about 25 percent of households who are eligible for housing assistance currently receive it. In many parts of the country, waiting lists are measured in years, sometimes extending to decades.

Research using administrative data on the receipt of housing assistance, which can be linked to health data available from a variety of programs, represents an opportunity to investigate health-related outcomes of populations served by housing assistance versus those who are not. Information about HUD data that is available for research purposes can be found on the HUDUSER portal. For example, administrative data on housing assistance has been linked with the National Health Interview Survey (NHIS) and the National Health and Nutrition Examination Survey (NHANES) to examine a range of obesity-related health outcomes, including self-rated health, diabetes control, food security, and psychological distress. Because not everyone who is eligible for housing assistance receives it, researchers have compared the health and health care between people with housing assistance and those who may be on the waitlist as one way to address confounding and allow more rigorous investigations. Generally, these studies have found that households receiving assistance experienced some improved health outcomes compared to those who received this assistance after the health data were collected (the waitlist group). HUD also oversees a wide range of other programs designed to promote neighborhood revitalization and development. A range of policy initiatives, demonstration programs, and other projects are currently being implemented, representing potential research opportunities.

Opportunities also exist to leverage existing HUD programs in connection with health care system—based programs and data, particularly as payors (such as Medicaid and Medicare) begin to cover weight loss programs. For example, a program at New York Health Family Medicine/Einstein Medical System, which screened for health behaviors, found that access to affordable housing was one of their patients' top social needs. Furthermore, programs like the Diabetes Prevention Program (DPP) were not reaching lower income patients, people of color, and men. The DPP is a type 2 diabetes, 12-month group-based lifestyle intervention that uses a CDC-approved curriculum. This program is administered by a certified lifestyle coach, either in person or via distance learning or a virtual platform. Searching medical records for patients living in public housing led to the opportunity to target and adapt the DPP for delivery to these groups. As screening for social needs becomes more common within the health care sector, evaluation of health behaviors and connections to resources—and potentially linking data in

the EHR with social services—has the potential to enhance the knowledge base about the role of housing insecurity and other social needs in health.

#### Research Gaps and Opportunities

- Leverage linked data sets—including those that include HUD program participation and health data, such as HUD linked with NHIS and NHANES—to understand the influence of housing assistance on obesity-related health behaviors, health care utilization, and health outcomes.
- Learn from a wide range of HUD programs and other housing interventions, including
  mobility services and emergency rental assistance, to understand the influence of those
  programs on individual and community health, including the neighborhood, social
  connections, and distribution of resources, as well as unintended consequences.
- Explore opportunities to examine individual-level housing needs and characteristics of health behaviors through the electronic health record in large health care systems and/or payor systems, with a focus on longitudinal follow-up. This approach may include administrative data linkages using electronic health and social service data.

#### **Housing-focused Research and Intervention Opportunities**

Research is urgently needed to develop, implement, and evaluate housing-related interventions, including public policies and programs, community-based opportunities, and health care system—based programs designed to address obesity-related adverse social needs. In four subpanel sessions, workshop participants discussed the role of housing access in obesity, health behaviors, and health inequities, highlighting the interventional successes, challenges and barriers, and research opportunities.

Intervening on Housing and Its Neighborhood Context: Programs, Policies, and the Built Environment

The session focused on how changes to the neighborhood environment can impact obesity. Highlighted studies included the Watts Neighborhood Health Study—a longitudinal research study looking at the effects of neighborhood built and social environments on obesity for low-income, urban populations—and the Pittsburgh Hill/Homewood Research on Neighborhood Change and Health (PHRESH) study, a study that demonstrated how increased access to supermarkets can impact food shopping behaviors and diet. Local policies were also discussed, including efforts to end discriminatory housing practices, improve code enforcement, and increase neighborhood investments. Specific efforts to advance housing equity that were touched upon included Buy the Block in Rochester, New York; Blitz on Blight in Des Moines, lowa, a neighborhood revitalization effort; and the Boulder, Colorado, Eviction Prevention and Rental Assistance Services program. Panelists noted the value of leveraging large-scale interventions that focus on the consequences of changes to the neighborhood environment. At the same time, they highlighted the need to work across silos in these types of evaluations, particularly the importance of bridging across local housing and health authorities.

Housing Support and Stability Interventions: Housing Mobility, Pathways to Homeownership, and Emergency Rental Assistance

This session identified a range of interventions designed to support housing security and housing choice. As an example, housing mobility programs are designed to help families receiving federal rental assistance move to neighborhoods with more resources and opportunities. HUD's Moving to Opportunity for Fair Housing Demonstration Program (MTO) was a randomized controlled trial conducted in the mid-1990s, which assigned families living in public housing located in high poverty areas to one of three study arms: (1) a rental voucher and mobility services requiring them to move to a lower poverty (less than 10%) neighborhood, (2) a rental voucher without a requirement to move to a lower poverty neighborhood, or (3) a control group. The study (Ludwig et al., 2011) found that adults in the mobility group who received a voucher to move to a low-poverty neighborhood had reduced rates of severe obesity and lower levels of HbA1C relative to a control group at the long-term follow-up; however, the mechanisms underlying these changes are unclear. In 2021, HUD launched the Community Choice Demonstration Program, a randomized controlled trial similar to MTO, with the active intervention group receiving comprehensive mobility services designed to reduce barriers to renting in opportunity neighborhoods and landlord outreach, compared to groups who receive vouchers with standard assistance, and a control group.

Other programs discussed during the session included the <u>Make It Home</u> program in Detroit, Michigan, which provides tenants living in homes under foreclosure with assistance in purchasing their homes. The program resulted in sustained homeownership for many households. During the SARS-CoV-2 pandemic, emergency rental assistance (ERA) in many jurisdictions also helped stabilize many households. Preliminary results suggest that ERA is associated with lower rates of negative COVID-19 effects and improved self-assessment of health. Panelists stressed the need for more research to evaluate the role of diverse housing support programs in obesity rates, related behaviors, and the mechanisms underlying any changes from these and other programs.

Delivering Evidence-based Obesity Interventions in the Housing Context

The next session described several approaches that pair housing and evidence-based obesity interventions. The first approach sought to address housing-related social needs in the context of delivering evidence-based obesity interventions, such as the DPP. Panelists described how, in at least one DPP implemented in collaboration with a public housing authority (PHA), participants were screened for housing-related social needs and community health workers help address these needs. The second approach used housing authority—managed programs as the site for the delivery of obesity-focused interventions. This included, for example, bringing DPP to residents at public housing buildings with the goal of reducing travel barriers to program participation. However, panelists stressed many other barriers that prevent participation in healthy lifestyle interventions and discussed work beginning to address these barriers. This includes interventions designed to increase food access (e.g., community food banks, farms, gardens, and mobile markets) and to create safe spaces for play and movement.

#### Housing Insecurity and Obesity: Roles for Health Care Systems

The fourth panel focused on opportunities and programs that health care—based systems and payors have implemented to address housing insecurity and its link to obesity. One example is the MassHealth (a state program that combines Medicaid and the Children's Health Insurance Program into one) Flexible Services Program, which is composed of partnering accountable care organizations (ACOs) that connect patients with community-based food and housing services. An NIDDK-funded evaluation of one participating Medicaid ACO revealed that more than 50 percent of enrollees (adults and children) had at least one health-related social need: 16 percent experienced food insecurity, 11 percent experienced housing insecurity, and more than 60 percent had received a documented diagnosis of obesity.

Efforts promoting health equity through screening, systems, and place-based policies include a pilot Boston Medical Center–led randomized controlled trial testing housing prescriptions as a health care intervention among medically complex families with children, as well as an Ohiobased collaborative public–private partnership household-level intervention called Nationwide Children's Hospital's Healthy Neighborhoods Healthy Families, which seeks to improve health outcomes in the community. The Center for Medicare & Medicaid Services (CMS) Accountable Health Communities Model also supports a consortium of health care—based programs addressing health-related social needs, including housing instability and food insecurity.

Panelists noted some challenges with health care system—based programs addressing social risks like housing insecurity. Barriers include documentation burden, increased administrative costs, cross-sector variability in implementation and management, and—critically—a lack of supply of affordable housing, all of which can impede health system interventions. Implementation and evaluation of interventions during critical periods, such as pregnancy and early childhood, were also recognized as high-priority research needs.

#### Research Gaps and Opportunities

Across all sessions, important principles, gaps, and research opportunities were identified during the presentations and panel discussions, including the following recommendations:

- Incorporate the perspectives of people with lived experience of housing insecurity to identify research questions and measures and use an assets-based perspective; build trust with communities and with individuals experiencing housing insecurity.
- Partner with local housing champions—including local nonprofit organizations, PHAs, local governments, and others—to assess the effects of their programs on obesityrelated health behaviors. When partnering with community-based organizations (CBOs), use equitable, shared power approaches with an eye on sustainability.
- Investigate the role of housing insecurity, its influence, and mechanisms underlying health across the life span, particularly across diverse populations during critical periods, such as the prenatal period, early childhood, adolescence, and older adulthood.

- Evaluate the effect of multifaceted, community-level interventions addressing housing insecurity and the housing environment on health outcomes in diverse participants, including during critical periods of the life span.
- Incorporate rigorous methods to assess longitudinal data in evaluations, including the use of administrative data and electronic health records, and explore novel pathways that affect obesity-related behaviors.
- Incorporate screening for and assistance with health-related social needs, including housing insecurity and other identified needs, into obesity-focused interventions.
- Disseminate and implement effective weight loss interventions embedded within PHAs and other housing programs.

#### **Breakout Listening Sessions**

Participants identified several high-priority research opportunities at the intersections of housing, obesity, and health equity. A synthesis of housing research challenges and barriers, key research questions to be addressed, and research priorities is presented below.

#### Housing and Health Research Challenges

- Housing insecurity is a diverse concept with many different aspects and intersecting
  mechanisms that can accumulate over generations to affect health. Each of these
  aspects may require different research approaches to understand how it influences
  health and interventions designed to improve health outcomes.
- Housing is correlated with other SDOH as well as with adverse housing environments, which interact to produce health outcomes in diverse populations and communities.
   Research is needed to deconstruct these interconnected pieces to determine optimal interventional touchpoints.
- Disease-based research siloes have hampered productivity, particularly in research with a general health equity focus.
- Qualitative and mixed-methods research is needed to understand how housing insecurity plays out from the perspective of lived experience.
- Multidisciplinary teams that use disease-agnostic approaches and have expertise in housing, urban planning, and epidemiological, clinical, and translational research are needed.
- Opportunities to use novel analytical research methodologies and research designs to
  assess intermediate outcomes along the path to obesity (e.g., behaviors, sleep, stress,
  anxiety, other social factors) and their underlying mechanisms should be explored.

#### **Key Research Questions**

 What are the interconnected relationships among aspects of housing, other SDOH, health behaviors, and health outcomes, including stress and mental health? How do individual, interpersonal, community, and societal barriers intersect to produce or reverse housing insecurity?

- What are the biological pathways (e.g., neural, physiological, psychosocial) that underlie housing insecurity to produce adverse health outcomes?
- How have housing policies and unintended consequences, including gentrification and displacement, affected health and social outcomes?
- How do variable and interconnected approaches to address the limited supply of affordable housing influence obesity outcomes and health behaviors?
- What are the effects of policies to eliminate discriminatory practices in housing and lending on health outcomes across diverse populations and communities?
- Could upstream interventions (e.g., reparations, homeownership tax structures, minimum income, zoning laws, other policies) that address root causes produce more substantial impacts and improve health outcomes?
- Can "neighborhood as the patient" approaches (e.g., Healthy Neighborhoods, Healthy Families) be implemented more broadly to advance housing and related neighborhood-level determinants?
- Can precision interventions targeted to specific social needs for each individual or community improve health outcomes?

# High-priority Housing-focused Research Opportunities

- Disentangle various mechanisms of impact, for example, by investigating the relative contribution of housing effects via changes in stress versus behavioral changes versus other neighborhood determinants, including green space and crime.
- Explore the creation of novel data sets that include data linkages involving administrative housing data, electronic health data from health care systems, insurance claims data, and surveys.
- Prioritize the creation of longitudinal data and incorporation of mixed methods and qualitative approaches designed to investigate mechanisms and trajectories.
- Consider how SDOH and wider economic factors can guide research in this space; focus
  on the ways in which multiple forms of resource deprivation coexist for many
  households; and incorporate life course perspectives that recognize the importance of
  critical periods and developmental stages.
- Identify and leverage natural experiments, particularly those conducted in collaboration with community members, policymakers, and administrators.

# **Building Research Partnerships and Methodologies**

Several additional themes emerged during the workshop and are summarized below.

#### **Partnerships**

 Engage with communities and with individuals with lived experience to obtain input and perspectives when designing and implementing research studies, including an emphasis on power sharing and equitable contribution.

- Partner with housing policymakers and administrators at the federal, state, and local levels to understand barriers and opportunities and to ensure policies are implemented in ways that are amenable to research.
- Identify opportunities to identify barriers that housing developers and landlords face in construction or management of housing programs to ascertain how public policy and incentives could help overcome barriers
- Seek out and partner with CBOs, health care providers, and other groups that provide
  housing and related resources to ensure that interventions can be sustained following
  completion of the research. CBOs should receive equitable shares of research funding
  and shared power in research design and development.

# **Priorities for Training and Research Methods and Tools**

- Build a diverse research workforce with the expertise to employ emerging research methods, particularly in the conduct of community-based research.
- Develop multilevel frameworks and models demonstrating the levels of influence and relationships between various aspects of housing—including the underlying structures of the housing market—and obesity.
- Leverage NIH resources, including the <u>Common Data Elements (CDE)</u> Repository, to permit comparison of research studies.
- Identify or develop low-burden measures that are validated in diverse populations and disease contexts to screen for social risks and assess social outcomes.
- Consider opportunities for digital technologies to measure risks, behaviors, and outcomes in communities more easily. In the research design, ensure that methods are culturally competent and appropriate for research participants.
- Utilize tools that can capture behaviors underlying risk for obesity and weight change (e.g., diet, physical activity and sedentary behavior, stress), recognizing that weight and the body mass index have value but may not be ideal for capturing change or mechanisms in response to interventions.
- Develop and disseminate best practices for rigorous, multilevel evaluation of natural experiments.
- Adopt implementation science—based research approaches to understand best practices and effectiveness of interventions.

#### Conclusion

Although unique issues remain that this two-day workshop was not able to explore fully, the hope is that the results of this meeting will provide guidance for researchers, practitioners, and policymakers as they consider next steps in this new and emerging field. Experts underscored the complex nature of the relationships between housing security and obesity and the important work yet to be done to untangle these relationships, to better understand the mechanisms, and to design and evaluate interventions. The workshop presents a call to action to advance a housing and obesity agenda that promotes health equity for all.

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