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HOUSING AND HEALTH: AN OVERVIEW OF THE LITERATURE

There is strong evidence characterizing housing's relationship to health. Housing stability, quality, safety, and affordability all affect health outcomes, as do physical and social characteristics of neighborhoods.

The impact of housing on health is now being widely considered by policy makers. Housing is one of the best-researched social determinants of health, and selected housing interventions for low-income people have been found to improve health outcomes and decrease health care costs. As a result, many health care systems, payers, and government entities are seeking to better understand the totality of the health and housing literature to determine where they might intervene effectively. This brief outlines the literature and provides high-level direction for future research and policy agendas.

Four Pathways

Existing evidence on housing and health can be understood as supporting the existence of four pathways by which the former affects the latter (exhibit 1). First, there are papers describing the health impacts of not having a stable home (the stability pathway). Second, there are papers describing the health impacts of conditions inside the home (the safety and quality pathway). A third, smaller set of papers describes the health impacts of the financial burdens resulting from high-cost housing (the affordability pathway). Lastly, a rapidly growing literature describes the health impacts of neighborhoods, including both the environmental and social characteristics of where people live (the neighborhood pathway).

This brief reviews each of the pathways in turn, including examples of both observational studies of housing deficits and interventional studies of possible solutions.

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THE STABILITY PATHWAY

Observational studies have shown that being without a stable home is detrimental to one's health. People who are chronically homeless face substantially higher morbidity in terms of both physical and mental health and of increased mortality.

Many people experience traumas on the streets or in shelters, which has long-standing adverse impacts on psychological well-being. These and other challenges can result in persistently high health care expenditures due to emergency department and inpatient hospital use. Even children who experienced homelessness only while in utero are more likely to be hospitalized or suffer worse health, compared to their peers.

People who are not chronically homeless but face housing instability (in the form of moving frequently, falling behind on rent, or couch surfing) are more likely to experience poor health in comparison to their stably housed peers. Residential instability is associated with health problems among youth, including increased risks of teen pregnancy, early drug use, and depression. A review of twenty-five studies that examined the impact of foreclosure on mental health and health behaviors (including substance abuse) found that all of the studies reported that foreclosure was associated with worsened outcomes, including depression, anxiety, increased alcohol use, psychological distress, and suicide. Matthew Desmond's recent ethnography, *Evicted*, illustrates how the stress of unstable housing can result in disruptions to employment, social networks, education, and the receipt of social service benefits. The lack of stable housing can also decrease the effectiveness of health care by making proper storage of medications difficult or impossible.

> "Housing the homeless has consistently been shown to improve health outcomes."

In contrast, providing access to stable housing can improve health and reduce health care costs. Within a population of nearly 10,000 people in Oregon with unstable housing, the provision of affordable housing decreased Medicaid expenditures by 12 percent. At the same time, use of outpatient primary care increased by 20 percent and emergency department use declined by 18 percent for this group. The health impacts of other means of stabilizing housing, including rental and foreclosure assistance, have also been rigorously studied in relation to mental health outcomes.

Housing the homeless has consistently been shown to improve health outcomes. In one of several randomized controlled trials of interventions to address homelessness, long-term housing subsidies had positive impacts on measures of psychological distress and intimate partner violence. Particularly among chronically homeless people, having a safe place to stay can both improve health and decrease health care costs. The extent to which the reductions in health care costs fully offset the costs of housing continues to be a subject of debate. The Housing First model, in which chronically homeless people with a diagnosis of a behavioral health condition receive supportive housing, has been shown to be particularly cost-effective, with one study finding that the provision of housing generated cost offsets of up to $29,000 per person per year, after accounting for housing costs.

EXHIBIT 1

Four pathways connecting housing and health

SOURCE: Adapted by the author from Gibson et al. 2011, Sandel et al. 2018, Maqbool et al. 2015, and Braveman et al. 2011.

THE SAFETY AND QUALITY PATHWAY

A number of environmental factors within homes are correlated with poor health. In-home exposure to lead irreversibly damages the brains and nervous systems of children. Substandard housing conditions such as water leaks, poor ventilation, dirty carpets, and pest infestation have been associated with poor health

outcomes, most notably those related to asthma. Additionally, exposure to high or low temperatures is correlated with adverse health events, including cardiovascular events—particularly among the elderly. Residential crowding has also been linked to both physical illness (for example, infectious disease) and psychological distress.

A large number of interventional studies demonstrate the potential for improving health through improved housing quality and safety. Studies in which asthma triggers are removed have repeatedly demonstrated health improvements and cost reductions among both children and adults (see also here and here). Research on smoking bans in public and affordable housing has found reductions in the number of smokers, the number of cigarettes smoked per smoker, and secondhand smoke exposure among nonsmokers. Children in families participating in the federally funded Low Income Home Energy Assistance Program (LIHEAP), which provides financial assistance for home heating, medically necessary home cooling, and emergencies due to weather-related fuel shortages, were at a healthier weight and at less nutritional risk, compared to their nonparticipant peers. Among community-dwelling older adults, home modifications can reduce falls by 39 percent when delivered by occupational therapists, and a randomized controlled trial of a standardized package of home safety improvements to decrease fall risk is ongoing.

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THE AFFORDABILITY PATHWAY

In 2015, 38.9 million American families spent more than 30 percent of their income on housing, earning them the designation of being "cost burdened" and inhibiting their ability to invest in health-generating goods. In the same year, 18.8 million households were "severely cost-burdened" because they spent more than 50 percent of their income on housing, with much of this burden falling on renters rather than owners. If both rents and incomes rise at the rate of inflation, the number of American households that are severely cost-burdened because of rent is expected to reach 13.1 million in 2025, an 11 percent increase from 2015.

In some cases, Americans may choose to spend substantially on housing to live in neighborhoods that provide access to health-promoting features such as schools and parks. However, a lack of affordable housing options can affect families' ability to make other essential expenses and can create serious financial strains. Low-income families with difficulty paying their rent or mortgage or their utility bills are less likely to have a usual source of medical care and more likely to postpone needed treatment than those who enjoy more-affordable housing. Severely cost-burdened renters are 23 percent more likely than those with less severe burdens to face difficulty purchasing food. Homeowners who are behind in their mortgage payments are also more likely to lack a sufficient supply of food and to go without prescribed medications, compared to those who do not fall behind on payments. Conversely, New York City families with affordable rent payments were found to increase their discretionary income by 77 percent, freeing up funds to spend on health insurance, food, and education or to save for a future down payment on a home.

THE NEIGHBORHOOD PATHWAY

Research on the influence of physical surroundings on health has been ongoing since John Snow's investigation of the Broad Street pump. In the modern era, researchers have found that the availability of resources such as public transportation to one's job, grocery stores with nutritious foods, and safe spaces to exercise are all correlated with improved health outcomes. Living in close proximity to high-volume roads, in contrast, is a danger to health and can result in increased rates of respiratory diseases such as asthma and bronchitis and increased use

of health care. In one study of neighborhood blight remediation, even walking past a vacant lot that had been "greened" decreased heart rate significantly, in comparison to walking past a nongreened vacant lot. The same authors also found that abandoned building and lot remediation significantly reduced firearm violence. Researchers evaluating the creation of a Safe Routes to School program in Texas found that the addition of sidewalks, bike lanes, and safe crossings reduced pedestrian and bicyclist injuries 43 percent among children ages 5–19.

Less visible but potentially even more important are neighborhoods' social characteristics, including measures of segregation, crime, and social capital. Sociologists have conducted crucial research that describes the health impacts of social and institutional dynamics of communities. David Williams and Chiquita Collins, in particular, have documented the impact of neighborhood segregation on health, suggesting that segregation widens health disparities by determining access to schools, jobs, and health care; influencing health behaviors; and increasing crime rates in neighborhoods of color. Although the preponderance of evidence suggests that racial segregation has negative impacts on health, some researchers have reported health-protective effects among blacks living in "clustered black neighborhoods."

> "The evidence on the relationship between housing and health is complex but compelling."

An analysis of the Moving to Opportunity for Fair Housing Demonstration Program has offered some of most compelling data on the impact of neighborhoods on health. Under this landmark federally funded experiment, people were randomly assigned to groups that either did or did not receive financial and other assistance in moving to lower-poverty areas—a research design that overcame unobservable selection effects inherent in many previous studies. Adults who moved experienced improvements in long-term mental health and some aspects of physical health (for example, reductions in the prevalence of obesity and diabetes) in comparison to peers who remained in high-poverty areas. Nearly two decades after the experiment concluded, Raj Chetty and colleagues found that when children were younger than age thirteen when they moved to a low-poverty neighborhood, their likelihood of attending college and projected lifetime earnings were significantly improved.

Evaluation Of Available Research

The weight of evidence is unevenly distributed among the four pathways. There is a great deal of evidence in both the stability and the safety and quality pathways of the risks associated with housing deficits and the potential health gains of providing housing or improving conditions inside the home. However, much of this research is concentrated in urban areas, and suburban and rural areas are frequently neglected. In addition, many of the studied interventions targeted people who were extremely high utilizers of health care without including a control group, which leaves the findings vulnerable to questions about regression to the mean. Finally, researchers reported health impacts more frequently than cost impacts for health systems, payers, or society. More financial analyses of housing interventions are therefore warranted, including examinations of costs related to social services and the criminal justice system.

The affordability pathway may have the least evidence to offer researchers and policy makers. At first blush, the pathway seems intuitive: As economists constantly point out, everything has an opportunity cost. Particularly among Americans with little disposable income, it is not surprising that people skimp on investments in other areas to make housing payments. However, additional studies of how people set priorities among basic needs and make decisions in conditions of scarcity may be useful in informing program and policy design.

Observational research about the neighborhood

pathway has made a strong case that individual-level analyses of risk factors are insufficient for predicting health outcomes. However, even well-designed studies of community-level interventions remain vulnerable to questions about whether causal inference can be established. The Moving to Opportunity evaluations were groundbreaking, in terms of both the randomized approach and the longer time periods used in the research. However, the question of how to address the social dynamics of neighborhoods (including inequality, segregation, and social capital deficits) appears ripe for further research. This will likely require an examination of how US housing policies have contributed to social inequality and residential segregation.

"The role of the government in improving housing cannot be minimized."

Finally, the literature would be strengthened by more natural experiment study designs, which require less active manipulation than randomized controlled trials and can isolate the impact of an intervention better than standard regression techniques.

Policy Implications

The evidence on the relationship between housing and health is complex but compelling. The health care sector, businesses, community-based organizations, foundations, and government each have unique roles to play in improving housing conditions in the United States.

The health care sector should continue to explore the extent to which home interventions, such as the well-studied community asthma initiatives, can make financial sense among other patient populations. Given the shift toward accountable care models and other value-based payments, the financial incentives for health care systems to take broader responsibility for social determinants of health (including housing) are likely to increase. Medicaid programs in Oregon, New York, and Massachusetts have endeavored to support health systems in providing housing-related services and, in some cases, making investments in local housing stock. In many instances, health systems have managed to acquire housing-related capabilities through cross-sector partnerships with community-based organizations. Large health care systems may also consider using community benefit dollars and other institutional resources to create new affordable housing units in their communities.

Private-sector businesses, lenders, and investors can play a variety of roles, particularly via the neighborhood pathway. Banks have long invested in affordable housing as part of their obligations under the Community Reinvestment Act of 1977. Community development financial institutions have a track record of investing in housing as part of comprehensive neighborhood development. Other commercial entities should consider themselves potential anchors for community revitalization (or market opening) projects. The work of the Healthy Neighborhoods Equity Fund and Build Healthy Places Network may be especially instructive.

Community development corporations, housing alliances, and neighborhood initiatives will no doubt continue to be the main channels for making the voices of low-income neighborhood residents heard. These entities may be particularly well suited to take on the redevelopment of blighted spaces, organize support for new local policies in public and affordable housing units (such as smoking bans and rent control ordinances), create community-led interventions to lessen social isolation, and lobby policy makers to remain committed to the development of low-income housing.

Health-related foundations must continue to ensure that housing opportunities are distributed equitably. In their role as funders of research, foundations could help create return-on-investment analyses of housing interventions. However, researchers and policy makers alike should be careful in assessing and interpreting such analyses. There may be investments that do not produce a positive return on investment to the health

care sector but that are nevertheless socially desirable. Foundations can and should continue to support the development of affordable housing on the ground that it is an essential contributor to good health.

Despite the best efforts of these actors, the role of the government in improving the stability, safety, quality, and affordability of housing cannot be minimized. Critically, the supply of available housing for low-income families must be increased. Expanding access to Low-Income Housing Tax Credits is one way in which the government should provide a stimulus to private developers and managers, while the expansion of rental assistance and mobility programs may provide more immediate relief for families facing housing instability. Federal assistance programs such as LIHEAP and other subsidies for household necessities should also be continued. In particular, new policies to support seniors' aging in place may be needed to prevent large-scale institutionalization of aging baby boomers. Finally, federal, state, and local housing policies must be used to combat the persistence of income inequality and racial segregation as urban populations grow and neighborhoods are revitalized.

Three forthcoming *Health Affairs* briefs will explore specific strategies to address both the demand- and supply-side challenges of providing affordable housing. The first, Housing Mobility Programs And Health Outcomes, will focus on the performance and scalability of housing mobility programs. The second and third (Using The Low-Income Housing Tax Credit To Fill The Rental Housing Gap and Housing And Health—The Role Of Inclusionary Zoning) will address the potential for low-income tax credits, inclusionary zoning, and other policies to increase the supply of affordable housing.

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