



## EXPLORING THE SOCIAL DETERMINANTS OF HEALTH

This issue brief, published in May 2011, is one in a series of 11 issue briefs on the social determinants of health. The series began as a product of the Robert Wood Johnson Foundation Commission to Build a Healthier America.

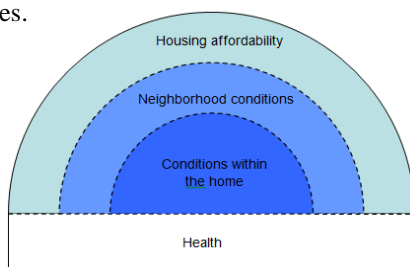
# Housing and Health



## 1. Introduction

Where we live is at the very core of our daily lives. For most Americans, home represents a place of safety, security and shelter, where families come together. Housing generally represents an American family's greatest single expenditure, and, for homeowners, their most significant source of wealth. Given its importance, it is not surprising that factors related to housing have the potential to help—or harm—our health in major ways. This issue brief examines the many ways in which housing can influence health and discusses promising strategies to improve America's health by ensuring that all Americans have healthier homes.

The focus is on three important and inter-related aspects of residential housing and their links to health (Figure 1): the physical conditions within homes; conditions in the neighborhoods surrounding homes; and housing affordability, which not only shapes home and neighborhood conditions but also affects the overall ability of families to make healthy choices.



*Most Americans spend about 90 percent of their time indoors, and an estimated two-thirds of that time is spent in the home.<sup>1</sup> Very young children spend even more time at home<sup>2</sup> and are especially vulnerable to household hazards.*

**Figure 1. Housing influences health in many ways.**





## 2. Housing conditions and health

Good health depends on having homes that are safe and free from physical hazards. When adequate housing protects individuals and families from harmful exposures and provides them with a sense of privacy, security, stability and control, it can make important contributions to health. In contrast, poor quality and inadequate housing contributes to health problems such as infectious and chronic diseases, injuries and poor childhood development.<sup>3, 4</sup>

For example:

- Lead poisoning irreversibly affects brain and nervous system development, resulting in lower intelligence and reading disabilities. An estimated 310,000 children ages one to five have elevated blood lead levels.<sup>5</sup> Most lead exposures occur in the home, particularly in homes built before 1978 that often contain lead-based paint and lead in the plumbing systems. Deteriorating paint in older homes is the primary source of lead exposure for children, who ingest paint chips and inhale lead-contaminated dust. Between 1998 and 2000, a quarter of the nation's housing—24 million homes—was estimated to have significant lead-based paint hazards.<sup>6</sup>
- Substandard housing conditions such as water leaks, poor ventilation, dirty carpets and pest infestation can lead to an increase in mold, mites and other allergens associated with poor health. Indoor allergens and damp housing conditions play an important role in the development and exacerbation of respiratory conditions including asthma, which currently affects over 20 million Americans<sup>7, 8</sup> and is the most common chronic disease among children. Approximately forty percent of diagnosed asthma among children is believed to be attributable to residential exposures.<sup>9, 10</sup> In 2004, the cost of preventable hospitalizations for asthma was \$1.4 billion, a 30 percent increase from 2000.<sup>11</sup>
- Exposure to very high or very low indoor temperatures can be detrimental to health. Cold indoor conditions have been associated with poorer health, including an increased risk of cardiovascular disease.<sup>3</sup> Extreme low and high temperatures have been associated with increased mortality, especially among vulnerable populations such as the elderly.<sup>4</sup>
- Housing can be a source of exposure to various carcinogenic air pollutants. Radon, a natural radioactive gas released from the ground, has been associated with lung cancer; an estimated one in 15 homes has elevated radon levels.<sup>12</sup> Residential exposure to environmental tobacco smoke, pollutants from heating and cooking with gas, volatile organic compounds and asbestos have been linked with respiratory illness and some types of cancer.<sup>13</sup>
- Each year, injuries occurring at home result in an estimated 4 million emergency-department visits and 70,000 hospital admissions.<sup>14</sup> Contributing factors include structural features in homes, including steep staircases and balconies, lack of safety devices such as window guards and smoke detectors, and substandard heating systems.<sup>3, 4</sup>
- Residential crowding has been linked both with physical illness, including infectious diseases such as tuberculosis and respiratory infections,<sup>3, 15</sup> and with psychological distress among both adults and children; children who live in crowded housing may

*Healthy homes promote good physical and mental health.*





have poorer cognitive and psychomotor development or be more anxious, socially withdrawn, stressed or aggressive.<sup>16</sup>

Poor indoor air quality, lead paint, lack of home safety devices, and other housing hazards often coexist in homes, placing children and families at great risk for multiple health problems. And substandard housing is much more of a risk for some families than others; housing quality varies dramatically by social and economic circumstances. Families with fewer financial resources are most likely to experience unhealthy and unsafe housing conditions and typically are least able to remedy them, contributing to disparities in health across socioeconomic groups in this country.

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#### EXAMPLES OF PUBLIC AND PUBLIC- PRIVATE INITIATIVES TO IMPROVE PHYSICAL CONDITIONS IN HOMES

*Healthy People 2010* called for a 52-percent reduction in the more than six million currently occupied U.S. housing units with moderate or severe physical problems. Other housing-related goals include reducing indoor household allergen levels and increasing the proportion of people living in pre-1950's homes that have been tested for presence of lead paint.<sup>17</sup> Because housing hazards often coexist in homes, evidence suggests that it may be more cost-effective to combat these home hazards together. While links between housing deficiencies and health conditions are well substantiated, research evaluating the health benefits of specific interventions has been limited. There is, however, some evidence that multifaceted interventions may lead to improvements in children's health in general and asthma symptoms specifically, as well as to reduced use of medical services.<sup>18</sup> Examples of multifaceted interventions to improve conditions in homes for which some evidence is available include:

- **Healthy Homes Initiative (HHI).** Congress established the HHI to “develop and implement a program of research and demonstration projects that would address multiple housing-related problems affecting the health of children.” Begun in 1999, this HUD initiative strives both to identify multiple housing deficiencies that affect health, safety and quality of life and to take actions to reduce or eliminate the health risks related to poor quality housing. HHI supports interventions (executed through competitively-awarded agreements, contracts with private and public agencies and interagency agreements) in four areas: excess moisture, dust, ventilation and control of toxins, and tenant education in high-risk housing areas. Approximately \$48.5 million was spent on these programs from 1999-2005.<sup>19, 20</sup>
- **Seattle King County Healthy Homes Project (SKCHHP).** From 1997-2005, this project—sponsored by the Seattle Partners for Healthy Communities and primarily funded by the National Institute of Environmental Health Science—was developed by a partnership of public and private agencies to improve asthma-related health status by reducing exposure to allergens and irritants in low-income households of families with asthmatic children. Paraprofessional community home environmental specialists visiting homes over a 12-month period provided a comprehensive set of interventions including a home environmental assessment, individualized action plans, education and social support, and the provision of materials and resources to reduce exposures to allergens. Building on the success of this program, the HUD-funded Seattle Healthy Homes Initiative incorporated remediation of structural lead and injury hazards into the intervention package to address exposures to multiple household hazards.<sup>21, 22</sup>





### 3. Neighborhood conditions and health

Along with conditions in the home, conditions in the neighborhoods where homes are located also can have powerful effects on health.<sup>23</sup> The social, physical and economic characteristics of neighborhoods have been increasingly shown to affect short- and long-term health quality and longevity. A neighborhood's physical characteristics may promote health by providing safe places for children to play and for adults to exercise that are free from crime, violence and pollution. Access to grocery stores selling fresh produce—as well as having fewer neighborhood liquor and convenience stores and fast food outlets—can make it easier for families to find and eat healthful foods. Social and economic conditions in neighborhoods may improve health by affording access to employment opportunities and public resources including efficient transportation, an effective police force and good schools. Neighborhoods with strong ties and high levels of trust among residents may also strengthen health. Not all neighborhoods enjoy these opportunities and resources, however, and access to neighborhoods with health-promoting conditions varies with household economic and social resources. Housing discrimination has limited the ability of many low-income and minority families to move to healthy neighborhoods. The concentration of substandard housing in less advantaged neighborhoods further compounds racial and ethnic as well as socioeconomic disparities in health (see the “Neighborhoods and Health” issue brief in this series).

### 4. Housing affordability and health

The affordability of housing has clear implications for health. The shortage of affordable housing limits families' and individuals' choices about where they live, often relegating lower-income families to substandard housing in unsafe, overcrowded neighborhoods with higher rates of poverty and fewer resources for health promotion (e.g., parks, bike paths, recreation centers and activities). The financial burden of unaffordable housing can prevent families from meeting other basic needs including nutrition and health care, and is particularly significant for low-income families.

Housing is commonly considered to be “affordable” when a family spends less than 30 percent of its income to rent or buy a residence. An estimated 17 million households in the United States pay more than 50 percent of their incomes for housing.<sup>24</sup> It is important to note that a given percentage of income can reflect very different burdens

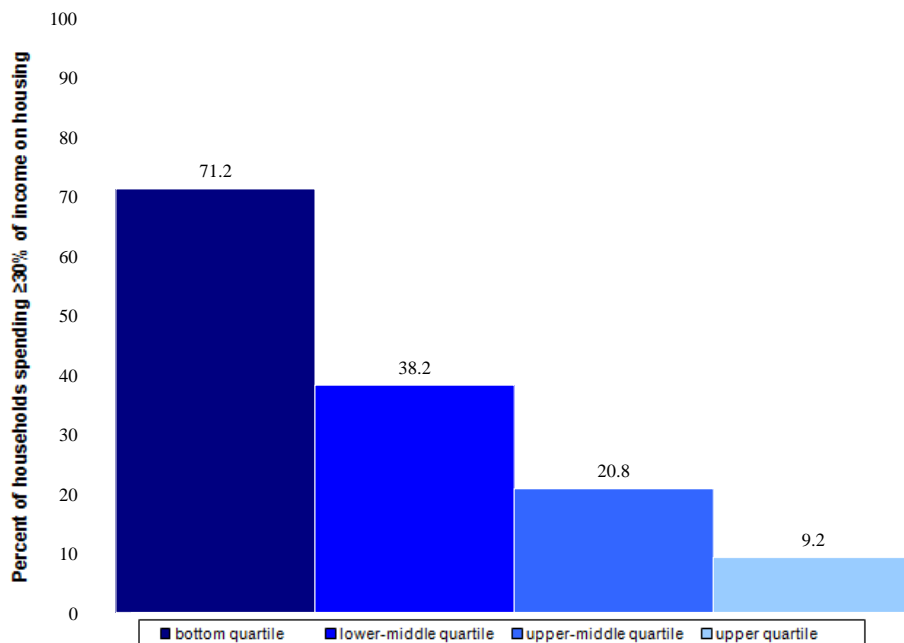
*Living in a disadvantaged neighborhood can limit opportunities for healthy choices, regardless of a family's own level of resources.*

*The availability of affordable housing shapes families' choices about where they live, often relegating lower-income families to substandard housing in neighborhoods with higher rates of poverty and crime and fewer health-promoting resources.*





depending on a family’s overall level of financial resources—having 50 percent of a \$200,000 annual salary left to spend after covering housing costs provides a very different set of options than having 50 percent of a \$19,000 annual salary left. Not surprisingly, lower-income families are more likely to lack affordable housing (Figure 2).



\*Income quartiles are equal fourths of all households sorted by pre-tax income.

Based on 2006 American Community Survey tabulations from The State of the Nation’s Housing, 2008.

Figure 2. The percentage of American families who spend at least 30 percent of their income on housing decreases dramatically with higher income levels. Lower-income families are more likely to experience health impacts associated with unaffordable housing.

The lack of affordable housing affects families’ ability to meet other essential expenses, placing many families under tremendous and constant financial strain. High housing-related costs place a particular economic burden on low-income families, forcing them to make trade-offs between food, heating and other basic needs.

- High housing payments relative to income, along with rising utility costs, force some families to choose between heating, eating, and filling prescriptions. One study found that low-income people with difficulty paying rent, mortgage or utility bills were less likely to have a usual source of medical care and were more likely to postpone treatment and to use the emergency room for treatment.<sup>25</sup>
- In addition, another study showed that children who lived in areas with higher rates of unaffordable housing tended to have worse health, more behavioral problems and lower school performance.<sup>26</sup>
- People also make trade-offs when trying to obtain affordable housing. Many live far away from their work, requiring them to spend more time and money commuting and less time engaging in health-promoting activities.
- Families who lack affordable housing are more likely to move frequently. Residential instability is associated with emotional, behavioral and academic problems among children, and with increased risk of teen pregnancy, early drug use, and depression during adolescence.<sup>27, 28</sup> These impacts in turn can have longer-term health consequences.

*Homeownership can promote social ties and investment in the community, and neighborhoods with higher rates of homeownership tend to have higher levels of neighborhood stability and wealth.*





Housing affordability and its implications for health affect both renters and homeowners. For low-income renters, there are simply not enough affordable units; an estimated 9 million low-income renters must compete for only 3 million available and affordable rental units.<sup>24</sup> Homeownership can promote social ties and investment in the community, and neighborhoods with higher rates of homeownership tend to have higher levels of neighborhood stability and wealth. Not all members of our society have the same opportunities to realize the American dream of homeownership, however. Families at greater social and economic disadvantage are less likely to own their own homes. Among those who do, the recent rise in foreclosures has had a disproportionate impact. Low-income and minority homeowners are more likely to receive subprime loans, be the victims of predatory lending and end up in default. The health impacts of foreclosure have yet to be studied. Many suspect, however, that foreclosures may harm the health of families undergoing foreclosure, as well as the broader community, through increased stress, loss of financial resources and breakdown in social networks.<sup>29-31</sup>

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### SEEKING HEALTHIER ALTERNATIVES TO TRADITIONAL PUBLIC HOUSING: PUBLIC AND PRIVATE INITIATIVES

Awareness of the ways housing affects health has led the federal government to launch a number of initiatives and programs to promote low-income families' access to better housing. Objectives in HUD's Strategic Plan for 2000-2006 included increasing the availability of decent, safe and affordable housing in American communities and promoting housing stability, self-sufficiency and asset development for individuals and families. Public housing has been a major focus of efforts to make housing more affordable, but more needs to be done. While an estimated 1.2 million households currently live in public housing,<sup>32</sup> wait lists remain long and the need for assistance has outpaced federal funding in recent years. Less than a quarter of people who are eligible for these programs are currently enrolled. The large public housing projects constructed in the 1960s have been widely criticized for leading to the concentration of poverty.

Two alternatives to housing projects have been evaluated, with results showing that the issues are complex:

- Housing subsidies to low-income families enabling them to rent in the private sector. Housing vouchers help individuals rent privately-owned houses that meet certain criteria for quality standards and rent guidelines. Moving to Opportunity (MTO) for Fair Housing Demonstration Project, a randomized controlled experiment in five cities, was designed to test long-term effects on well-being and health associated with moving from high poverty areas to private-market housing in lower poverty neighborhoods. While early findings suggested favorable outcomes for families, the longer-term effects varied by the age and sex of the participants. Compared with families who had similar resources and characteristics but did not receive the vouchers, adults who received vouchers and were able to obtain housing in low-poverty areas experienced significant improvements in neighborhood satisfaction and safety, lower prevalence of psychological distress and depression, and reductions in obesity incidence. Among teenagers, girls experienced improved mental health and reported fewer risky behaviors; boys, however, actually experienced adverse outcomes including more delinquent and risky behaviors,<sup>33</sup> which some have speculated could be due to the stresses of moving and specifically of moving to areas where most peers were better-off.
- Replacing traditional public housing with more health-promoting designs. Since its creation in 1992, the HOPE VI program has invested \$6.3 billion dollars to demolish, reconfigure or replace the nation's worst housing projects. As of June 2006, over 78,000 units had been demolished and another 10,400 were slated for redevelopment. The health evaluations of this program did not include randomization or control groups, precluding definitive conclusions. However, housing development residents who relocated generally moved to lower poverty and safer neighborhoods and reported less fear and anxiety for their own and their children's safety. Following their moves, children in relocated families had fewer reported behavior problems, and this effect was strongest among girls. Despite evidence of improved living conditions among program participants who relocated, there have been no conclusive findings of corresponding improvements in health; rates of mortality actually appeared higher among some relocated participants relative to other vulnerable populations.<sup>34-36</sup>

Evidence from these initiatives indicates that simply moving low-income families to higher-income neighborhoods is unlikely to be sufficient for improving health, and that a broader range of strategies is needed. While an increasing number of efforts have incorporated mixed-income housing developments and may assist eligible households in buying homes, the potential health effects have not yet been evaluated.





## 5. Strategies for improving health through public and private housing policies: Healthier, more affordable homes in healthy neighborhoods

The evidence reviewed in this brief indicates that Americans' health could be improved in important ways through actions that target housing-related issues. History has shown the importance of addressing issues such as fire hazards, sanitation, ventilation and crowding to reduce injuries and certain infectious diseases. Now, in light of the growing body of evidence about the many ways that housing can affect health, it is clear that strategies must be multifaceted—focusing on improving the physical quality of housing, on strengthening health-promoting social as well as physical conditions in neighborhoods, and on increasing access to affordable housing for all Americans. Although it is beyond the scope of this brief to assess which strategies merit highest priority, the list below includes several examples of approaches that have received serious consideration by experts and public agencies. This non-exhaustive list includes strategies affecting multiple aspects of housing and approaches that would involve a wide range of different actors, from local to state to national government and non-governmental agencies and groups. Insofar as these or other policies can improve housing and reduce socioeconomic and racial or ethnic disparities in housing, there is a firm basis for expecting that they will make important contributions to improving America's health.



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### EXAMPLES OF STRATEGIES TARGETING CONDITIONS WITHIN THE HOME:

- Sustaining and expanding Healthy Homes initiatives at the federal, state and local levels, including public-private collaborative programs.<sup>3</sup>
- Providing support for high utilities costs through the federal Low Income Home Energy Assistance Program and similar state and voluntary programs that assist households with unaffordable heating, cooling, and electricity bills.<sup>37</sup>
- Pursuing public and private initiatives to encourage viable green building in residential construction and federal affordable housing programs by using energy efficient and green building standards; by providing resources to help support additional costs of implementing the programs; by providing incentives to private developers and builders to help meet and exceed sustainable goals; and by developing supportive financing mechanisms such as energy-efficient and location-efficient mortgages.<sup>38</sup>
- Increasing federal funding for state and local research and evaluation of demonstration projects to better identify, assess and control the multiple, overlapping hazards that exist in homes.<sup>39</sup>
- Improving and enforcing current federal, state and local housing codes and guidelines to reflect current knowledge regarding hazards within the home environment.<sup>3, 39</sup>
- Using national, state and local public campaigns and programs to educate and empower private- and public-sector housing providers, owners and tenants about the dangers of unsafe and unhealthy housing and about their rights and responsibilities.<sup>39</sup>
- Increasing resources and expanding the role of public health agencies in housing education, inspections and enforcements at the local, state and national level.<sup>3</sup>





## AN EXAMPLE OF STRATEGIES TARGETING NEIGHBORHOOD CONDITIONS

- Strengthening enforcement of fair housing laws, including the Federal Fair Housing Act and other state and local regulations prohibiting racial discrimination in housing markets, and evaluating housing antidiscrimination policy for its effects on health.<sup>40,41</sup>

## EXAMPLES OF STRATEGIES TARGETING HOUSING AFFORDABILITY:

- Developing public-private initiatives to expand affordable housing options through subsidies enabling individual tenants to rent in the private sector and through construction of new health-promoting affordable housing.
- Implementing state and local land use and zoning policies to promote fair housing choice in communities.<sup>42, 43</sup>
- Continuing federal involvement in lending and fairness standards for banking and loan institutions. Improving banking and lending procedures of the private-sector to create equal opportunities for credit.<sup>43</sup>
- Increasing collaboration across government agencies at all levels and between stakeholders from community groups, public health agencies, and private groups (e.g., employers) to ensure a coordinated approach to housing as a determinant of health and health disparities.<sup>3, 39, 43</sup>
- Exploring private initiatives—such as Habitat for Humanity—to create more affordable, healthy housing.

*Policies targeting affordable housing include subsidies enabling tenants to rent in the private sector, zoning policies promoting fair housing practices, fair opportunities for credit, and private initiatives such as Habitat for Humanity that expand the stock of housing.*

## RESOURCES

- Joint Center for Housing Studies, <http://www.jchs.harvard.edu/>
- National Center for Healthy Housing (NCHH), <http://www.centerforhealthyhousing.org/>
- National Fair Housing Alliance (NFHA), <http://www.nationalfairhousing.org/>
- National Housing Conference (NHC) and Center for Housing Policy, <http://www.nhc.org/about/NHC-Mission-Goals.html>
- PolicyLink, <http://www.policylink.org/>
- US Department of Housing and Urban Development (HUD), <http://www.hud.gov/>







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The Robert Wood Johnson Foundation Commission to Build a Healthier America was a national, independent, non-partisan group of leaders that released 10 recommendations to dramatically improve the health for all Americans. [www.commissiononhealth.org](http://www.commissiononhealth.org)

#### **ABOUT THIS ISSUE BRIEF SERIES**

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