# HOUSING AND HEALTH:
## THE CONNECTION, AND INNOVATIVE STEPS HEALTH SYSTEMS ARE TAKING TO ADDRESS HOUSING TO IMPROVE HEALTH

**Produced by The Root Cause Coalition**

Housing insecurity in America comes in many forms. As defined by the U.S. Department of Health and Human Services, housing insecurity includes high housing costs in proportion to income, poor housing quality, unstable neighborhoods, overcrowding, or homelessness. While the numbers of people affected by all forms of housing insecurity is not entirely clear, there are an estimated 1.5 million people in the nation who are homeless each year, while an estimated 41 million U.S. households paid more than 30% of their pre-tax income for housing. In all its forms, housing insecurity takes a toll on the health of people, whether they have no home, lack a stable living environment, or pay a larger than recommended share of their income on housing, crowding out the ability to pay for other necessities.

"Housing quality, housing stability, housing affordability and location are all tied to health," said Megan Sandel, MD, MPH, Associate Director of the GROW clinic at Boston Medical Center, a researcher with Children's HealthWatch and Associate Professor of Pediatrics at the Boston University Schools of Medicine and Public Health. "People are not in touch with how common this [housing insecurity] is. They think of it as homelessness only, but it's much broader than that." Housing is a so-called social determinant of health, or social, behavioral and environmental factors that impact one's health. Essentially, social determinants of health are influences and conditions in the places where people live, learn, work and play that can affect a wide range of health risks and outcomes. For example, poverty limits access to healthy foods and safe neighborhoods. The differences in health are striking in communities with poor social determinants of health such as unstable housing, low income, unsafe neighborhoods or substandard education.[31]

Housing or lack thereof has a significant impact on physical and mental health. Research clearly highlights the high physical, emotional, and financial tolls housing insecurity wreaks. While the 1.5 million homeless bear the brunt of the negative health outcomes associated with housing insecurity, the 41 million U.S. households that pay more than 30% of total household income on housing also are susceptible to negative health outcomes. Just as research shows the significant negative impact of those who are housing insecure, the literature also overall supports the important connection between stable, decent, and affordable housing and positive or improved health outcomes.

At the same time, research indicates that greater attention to social determinants of health may improve Americans' health and reduce health care costs. In other words, health care providers and organizations may see bigger improvements in patients' health by paying attention or treating things like housing or food insecurity that many patients face daily. As the shift in the United States toward value-based care has increased awareness about the roles housing and other social determinants of health play, some hospitals and health care systems are beginning to take steps – often collaborating with others in their communities – to chip away at housing insecurity and other underlying factors that contribute to people's health.

## How Housing Affects Health

Many studies show associations between housing insecurity and mental health problems or avoiding medical care, as well as the more intensive use of medical services. Homelessness, for example, is shown to have adverse health impacts. Studies consistently highlight that homeless children are more vulnerable to mental health problems, developmental delays, poor cognitive outcomes, and depression compared to children who have stable housing. The 1.5 million Americans who experience homelessness in any given year face numerous health risks and are disproportionately represented among the highest users of costly hospital-based acute care.[1] Meanwhile, stable housing is strongly associated with improved mental health outcomes and a reduction in the number of days hospitalized among formerly homeless adults.[2]

Less extreme housing instability – such as frequent moves, living in doubled-up housing, eviction, and foreclosure – also is related to elevated stress levels, depression and hopelessness. Among both adolescents and seniors, researchers have found a connection between the length of tenure in stable housing and residents' likelihood to report behavioral and mental issues. Longer tenures are associated with lower levels of depression among seniors and lower levels of anxiety and aggression among adolescents.[3] Meanwhile, children without stable housing were more likely to use emergency department services as a result of a lack of a regular health care provider.[4] Among adolescents, a significant association was found between early use of illicit drugs and moving four or more times before the age of sixteen years.[5]

An emerging body of evidence also suggests that even less severe manifestations of housing instability, such as difficulty keeping up with utility bills, mortgage payments, or home repairs, may be linked to lower levels of psychological well-being and more intensive use of medical services, particularly among men.[6] An estimated 41 million U.S. households paid more than 30% of their pre-tax income for housing,[6] while 18.5 million U.S. households paid more than half of their incomes for housing, reducing money available for other necessities, according to University of Chicago researchers.[7] An analysis of 2012 household expenditures found that low-income households that spent more than half their income on housing costs spent less on food and health care compared to similar households spending 30% or less of their income on housing. These differences in health care and nutrition spending were particularly large in rural areas.[8]

Another study found that increases in statewide average rents are correlated with increased rates of food insecurity among families with children.[9] Meanwhile, adults living in unaffordable housing are more likely to describe themselves as being in fair or poor health compared to similar individuals living in affordable housing. Cost burdened adults are also more likely to report failure to fill a prescription or adhere to health care treatments as a result of cost.[10] With so many families paying more than 50% of their incomes on housing, that leaves little money for other necessities such as food, clothing and health care. What happens is that people are forced to make "toxic tradeoffs," observed Sandel. "When rent or the mortgage is so high, people have to decide what to pay for – do I pay for food, my prescriptions, transportation to work? It's hard to ignore your landlord."

## Addressing Housing Insecurity Helps to Improve Health

Research overall supports the important connection between stable, decent, and affordable housing and positive or improved health outcomes. In fact, the evidence showing a direct relationship between housing interventions and health outcomes within low-income and otherwise vulnerable populations is extensive.

Affordable housing alleviates crowding and makes more household resources available to pay for health care and healthy food, which leads to better health outcomes. High-quality housing limits exposure to environmental toxins – including lead, air pollution, unsafe water – that impact health. Stable and affordable housing

Research Highlight on

# HOUSING INSECURITY'S IMPACT ON HEALTH

- Studies continually show that homeless children are more vulnerable to mental health problems, developmental delays, poor cognitive outcomes, and depression than children who are stably housed, and that stable housing is strongly associated with improved mental health outcomes and a reduction in the number of days hospitalized among formerly homeless adults.[2]
- Children who experienced pre-natal homelessness, such as their mothers were homeless during pregnancy but were housed after their birth, were 20% more likely to have been hospitalized since birth.[14]
- Children who experienced post-natal homelessness (i.e., their mothers were housed during pregnancy but were homeless when the children were infants and/or toddlers) were 22% more likely to have been hospitalized since birth.[14]
- Children who experienced both pre- and post-natal homelessness were 41% more likely to have been hospitalized since birth.[14]
- In 2014, an estimated 671,000 children age four or under had been homeless at some point or were born to a mother who was homeless when she was pregnant.[25] Children's HealthWatch estimated that these children, as a group, experienced 18,600 additional hospitalizations attributable to their experience of homelessness.[26]
- The average cost of one hospital stay for an infant was $16,248 and $10,139 for a toddler age 1 – 4 years old in 2015. The estimated total annual cost of hospitalizations attributable to homelessness among children age four and under in 2015 alone were over $238 million nationally, with more than half of those costs associated with hospitalizations of infants under the age of one.[14]
- Adults living in unaffordable housing are more likely to describe themselves as being in fair or poor health compared to similar individuals living in affordable housing. Cost burdened adults are also more likely to report failure to fill a prescription or adhere to health care treatments as a result of cost.[6]
- Adults undergoing a foreclosure have a significantly higher likelihood of failing to fill a prescription due to cost and are less likely to have health insurance coverage compared to the general population.[10]

also supports mental health by reducing stressors related to financial burden or frequent moves, or by offering refuge from an abusive home environment. Affordable homeownership can provide mental health benefits to homeowners, who feel more in control over their environment. Affordable housing also serves as a base for providing supportive services to the elderly, people with disabilities, homeless individuals and families, and other vulnerable populations. Safe, decent, and affordable housing in neighborhoods of opportunity can also offer health benefits to low-income households.

More specifically, a 2015 review prepared for the Blue Cross Blue Shield of Massachusetts Foundation found that several studies showed that providing housing support for low-income, high-

need individuals resulted in net savings due to reduced health care costs.[11] Research shows that lack of stable housing leads to higher spending on acute care services.[32] In some studies, the medical savings substantially offset the added costs of providing housing supports, such as rental housing, case management, education, and employment services. The net savings ranged from $9,000 per person annually to almost $30,000 per person per year for the Housing First model, a harm-reduction approach in Seattle and Boston which saw adults who are homeless and with behavioral health conditions provided with supportive housing.[12] Meanwhile, the 10th Decile Project, an intervention that targeted high-need homeless individuals in Los Angles, found that for every $1 spent, there was a savings of $2 in reduced spending the following year and $6 savings in subsequent years.[13] Further, the evidence indicates that the integration of housing with health care services can result in improved health outcomes.

"Whether enabling access to housing, creating a supportive housing environment, or simply expanding the availability of affordable housing to families in lower-poverty neighborhoods, the evidence suggests housing is critical to the health of vulnerable individuals," concluded the authors of the 2015 report. The studies examined "indicate that providing housing support for low-income, high-need individuals results in net savings due to reduced health care costs. Furthermore, the evidence indicates that the integration of housing with some health care services can result in improved health outcomes."

## Summary of Housing Inverventions

| | INTERVENTION | TARGET GROUP—PLACE | AUTHOR, YEAR | SUMMARIZED OUTCOMES |
|---|---|---|---|---|
| 1 | **Housing First** | People experiencing chronic homelessness—Seattle and Boston | Larimer, 2009; MHSA, 2014 | $29,388 per person per year in net savings, and $8,949 per person per year in net savings, respectively |
| 2 | **Special Homeless Initiative (HI)** | Adults with serious mental illness—Boston | Levine, 2007 | 93% reduction in hospital costs, resulting in $18 million reduction in health care costs annually |
| 3 | **10th Decile Project** | High-need homeless—Los Angeles | Burns, 2013 | 72% reduction in total health care costs; positive rate of return as every $1 invested in housing and support was estimated to reduce public and hospital costs by $2 the following year and $6 in subsequent years |
| 4 | **My First Place** | Foster care recipients—California | First Place for Youth, 2012 | Better health outcomes; $44,000 per person per year in net savings* |
| 5 | **Housing subsidies** | Low-income children—Boston | Children's Health Watch, 2009 | Better health outcomes; no cost analysis reported |
| 6 | **Moving to Opportunity (using vouchers)** | People living in high-poverty communities—Baltimore, Boston, Chicago, Los Angeles, New York | Sanbonmatsu, 2011; Ludwig, 2011 | Better health outcomes; no cost analysis reported |
| 7 | **Low-Income Energy Assistance Program (LIHEAP)** | Low-income children—Baltimore, Little Rock, Boston, Minneapolis, Washington, D.C. | Frank, 2006 | Less hospital use; no cost analysis reported |

* This savings is calculated based on a comparison of "traditional youth services" ($72,000) provided to foster care recipients who are not enrolled in My First Place and My First Place services ($28,000). These figures can be found on page 4 of the original source, available at http://myfirstplace.firstplaceforyouth.org/fpfy_executive_summary.pdf.

Other studies also have shown big benefits as well, including:

- Children's HealthWatch researchers found that infants in food-insecure families with rental assistance during the pre-natal period were 43% less likely to have been hospitalized compared to infants in food-insecure families eligible for but not receiving rental assistance. The reduced rate of hospitalization among the infants whose family had rental assistance in the pre-natal period resulted from better overall health and fewer instances of serious illness.
- The Children's HealthWatch research found that health care cost savings associated with avoided hospitalizations among infants in food-insecure families with rental assistance were an estimated $20 million – or 1,200 avoided hospitalizations – in 2015. These infant health care savings were attributable to their families' living in affordable housing in the pre-natal period.[14]
- Research suggests that stable and affordable housing may help individuals living with chronic diseases such as HIV/AIDS, diabetes and hypertension increase their rates of medical care, maintain their treatment regimens, and achieve better health outcomes.[15]
- One study found that participation in the Low Income Home Energy Assistance Program (LIHEAP), a federal home weatherization and energy assistance program that can reduce overall housing costs, decreases the likelihood of food insecurity and unstable housing situations.[16]

When families have few affordable housing options, they may be forced to live in substandard housing that puts residents at risk of lead poisoning, asthma, and accidental injury. Evidence suggests that simple measures such as the installation of smoke detectors and window guards can have a major impact on resident safety and health,[17] while code enforcement can also be an effective tool for remediating indoor residential health hazards such as mold.[17]

"Placing people who are homeless in supportive housing – affordable housing paired with supportive services such as on-site case management and referrals to community-based services – can lead to improved health, reduced hospital use, and decreased health care costs, especially when frequent users of health services are targeted," wrote Kelly M. Doran, M.D., M.H.S., Department of Emergency Medicine and the Department of Population Health, New York University School of Medicine and Bellevue Hospital Center, and colleagues in December 2013 New England Journal of Medicine Perspective.[1] "To truly reform U.S. health care and lower costs, we suggest that it's time to broaden our thinking and spending to reach outside conventional health care silos. Social determinants of health should be central to mainstream discussions and funding decisions about health care. For many patients, a prescription for housing or food is the most powerful one that a physician could write, with health effects far exceeding those of most medications."

## Opportunities for Hospitals and Health Systems

The Affordable Care Act (ACA) is forcing hospitals and doctors to reach beyond the four walls of hospitals and clinics and into the community. The new thinking among health care providers also is driven by the health reform law's mix of payment schemes, such as hospital readmission penalties, accountable care organizations, risk-based payment changes and stronger community benefit requirements for nonprofit providers.

For example, one ACA rule issued in December 2014 by the Internal Revenue Service gave nonprofit hospitals and health systems a further incentive to tackle social determinants of health in their communities. The final rule clarified the actions nonprofit hospitals can take to improve local community health beyond charity care to protect their nonprofit tax status, including addressing social determinants of health. Every three years, nonprofit hospitals are required to undertake an in-depth community health needs assessment, accounting for social determinants of health, and complete an implementation strategy to meet the community's needs. Hospitals are encouraged to

## TRANSPORTATION:
Another Social Determinant of Health

Health often is not considered in transportation policy and planning, even though transportation is one of the economic and social factors that influences people's health and the health of a community. The U.S. transportation system is a patchwork of highways, bridges, roads, sidewalks, bike paths, trains, and buses that connect people to each other and to places where they work, learn, play and get medical care. This system has increased mobility and access to goods and services, but it relies primarily on motorized transportation, with consequences for health.

The health costs associated with our transportation system – such as traffic crashes, air pollution, and physical inactivity – add up to hundreds of billions of dollars each year, but health is typically not considered in transportation policy and planning.[27]

Consider that:

- More than 80% of the nation's workers drive or ride in a car to work.[28]
- 40% of all trips in America are two miles or less, and three quarters of them are traveled by car.
- The dependence on driving leads to 40,000 traffic-related deaths annually and exposes us to air pollution.

About 35 million people live within 300 feet of a major roadway, putting them at greater them at greater risk for asthma and other respiratory illnesses, cardiovascular disease, pre-term births, and premature death.[27]

For those without a vehicle or who live in communities without reliable or any public transportation access, getting to the doctor's office, pharmacy, grocery store, and other places can be challenging, even impossible. Consider that the nation has 6,500 communities designated as food deserts.[29]

The development of livable, walkable communities, bike lanes and other healthy transit options is an important part of adequate transportation system. But some 80 % of federal transportation funds go to building roads and improving road infrastructures.[27]

Walkable, bikable, transit-oriented communities are associated with healthier populations. People in these communities are more physically active, have less weight gain, have lower rates of traffic injuries, and are less exposed to air pollution.[30] The sooner health is considered as part of transportation policy, the better our health stands to be.

work with other groups in the community to tackle such issues that impact health.

Beyond that, hospitals and health systems also realize the muscle they flex in a community to spur changes to improve lives and the health of people – a goal of ACA, which puts a focus on prevention and population health. As a result, hospitals and health systems "are beginning to build on their charitable efforts, beyond traditional corporate social responsibility, to adopt elements of an anchor mission in their business models and operations," wrote Tyler Norris, Vice President of

Total Health Partnerships for Kaiser Permanente, and Ted Howard, Co-founder and President of The Democracy Collaborative, in a recent report, "Can Hospitals Heal America's Communities? "All in for Mission" is the Emerging Model for Impact."[18]

After all, with hospitals and health systems representing more than $780 billion in total annual expenditures, $340 billion in purchasing of goods and services, and more than $500 billion in investment portfolios, the anchor mission approach expands the set of resources and tools institutions have at their disposal to carry out their mission, Norris and Howard state. "It shifts the discussion of community benefit from the margins of an institution's operations to overall accountability, where all resources can be leveraged to benefit the communities in which institutions are located."

With the evidence that so much of a person's health is affected by factors other than the medical care they receive and driven by social determinants of health, increasingly those in the health care system are taking on and partnering with others to address population health. And the nation's biggest health care payers, Medicare and Medicaid, are all in on the new approach and increasingly moving payments to support prevention and tackling fundamental issues that affect health. For example, federal officials have set goals that by the end of 2016, 30% of Medicare payments will be via fee-for-service alternatives; rising to 50% by 2018. Center for Medicare and Medicaid Innovation (CMMI) is funding innovative programs designed to improve health care quality, reduce medical cost, and boost the US population's health by addressing nonmedical factors.

Johns Hopkins University researchers, recipients of CMMI funding to boost housing stability among older residents in Baltimore to improve health, wrote in September 2016 issue of Health Affairs: "The shift in the United States toward value-based care has elevated awareness that drivers of health largely fall outside of the bricks and-mortar facilities of the health care system and can be found in the places where people live, work, and play." The team led by Sarah Szanton, Associate Professor of Nursing and of Health Policy and Management at Johns Hopkins University and colleagues said, "the importance of addressing such drivers, or determinants, of health is becoming increasingly clear ... The hypothesis driving these investments is that many high-cost users have problems that are unaddressed in traditional health care models, which ultimately leads to avoidable health care utilization."[19]

## Health Care Organizations Begin to Tackle Housing Insecurity

Between their own missions, the opportunities and pressures of ACA, and marketplace dynamics, hospitals and health systems are beginning to recognize or chip away – often through partnerships with others in their communities – ways to address social determinants of health and improve people's lives. Here are some examples of health care organizations casting a wider net beyond the traditional model of health care.

Health Starts at Home is a Boston Foundation-hosted initiative bringing together housing and health care organizations to help stabilize housing for local families to improve children's health outcomes. Unaffordable rents have had a "profoundly negatively impact" on a child's mental, behavioral and physical health, according to the Foundation. The effort supports partnerships among housing and health care organizations to highlight the importance of affordable housing in children's health outcomes, identify promising new and existing models that can be brought to scale to improve children's health outcomes, decrease health care costs; and reduce costs related to homelessness. Efforts to date involving Boston-area hospitals and health systems include:

- **Chelsea Health Starts at Home:** This effort has Massachusetts General Hospital (MGH) and MGH Chelsea HealthCare Center and Partners HealthCare, teaming with The Neighborhood Developers, Metropolitan Boston Housing Partnership, and Roca, screening for housing instability in a city where 50% of residents cannot afford stable unsubsidized housing. At

risk-families are referred to existing services at CONNECT, a collaboration housed at The Neighborhood Developers that includes access to short-term rental assistance and long-term stabilization supports, including benefits screening, financial coaching and services, workforce development resources, and housing counseling.

- **Housing Prescriptions as Health Care:** Children's HealthWatch, Project Hope, Boston Housing Authority, Medical-Legal Partnership, Nuestra Comunidad, Boston Medical Center – Problem Solving Education, BMC HealthNet Plan partner to create a seamless system of services for children under age four whose families are high users of emergency health care services. Medical staff writes housing prescriptions for at-risk and links families to care coordination services at Project Hope. Intensive case management helps families find, retain, and improve their housing by linking legal, problem-solving education, housing, and other services.

Several other Boston-area hospitals and health care organizations – including Beth Israel Deaconess Medical Center, Boston Medical Center, Brigham and Women's Hospital, Partners HealthCare System and Tufts Medical Center – partner with Boston Health Care for the Homeless Program to provide health care services to 12,000 homeless individuals in the metropolitan area every year. These include chronically ill adults, veterans, families with school-age children, and the elderly, who stay in emergency shelters, motel rooms, or on the street. With its many partners, the program provides access to comprehensive health care services – from preventative dental care to cancer treatment and mental health care – to these individuals.

Meanwhile, Cleveland's University Hospitals System has been on a mission to lift the community's health by using its economic clout to boost the wealth and economic stability of its surrounding communities and neighbors. Northeast Ohio's second largest employer, with an annual economic output of nearly $5 billion, the system undertook a $1 billion-plus, five-year expansion a decade ago with a mission to "buy local, hire local, live local." About 90% of procurement dollars and 20% of jobs went to local vendors and workers.[20] The system also includes a housing component to its economic development/improved health strategy for local residents.

To that end, the effort includes Greater Circle Living, a housing assistance program for people working in the Greater University Circle area, and the Evergreen Housing Program, which was launched with a local nonprofit housing developer, the Cleveland Housing Network (CHN), to address the system's employees' inability to access quality, affordable housing, which impeded employee retention. Employers part of the Greater Circle Living effort fund the program, which offers employees forgivable loans of $10,000 for down payment and/or closing costs for the purchase of an owner-occupied home, matching funds for exterior renovations, or one month's rental payment in Greater University Circle. Since the program's inception, 178 loans or subsidies have been originated, including 52 loans have been made for the purchase of a new home.

Through the Evergreen Housing Program, qualified employees purchase homes that have become available through CHN's lease-purchase program, typically for $15,000 or less, with monthly mortgage payments under $500 per month on a 4- or 5-year term. The model includes a "barn-raising" component in which cooperative members help one another update and maintain the homes. Many of the employees otherwise would not qualify for a home loan. The housing program helps members build wealth faster and keep them in neighborhoods.[21]

In Baltimore, there has been a housing security effort underway to both keep older, chronically ill adults safely in their homes and improve their health. With the number of older adults on target to double to 71 million by 2030, reducing unnecessary costs related to age-related chronic

disease is critical. The Johns Hopkins School of Nursing research study, called Community Aging in Place – Advancing Better Living for Elders (CAPABLE), set out to help older adults remain safely in their homes longer, improve health outcomes, and reduce medical costs. It does so by providing occupational therapist, client-center nursing, and access to handyman services.

The demonstration project, which was funded by CMMI and begun in 2012, brought the professional services to work with elderly low-income Baltimore residents for five months to improve residents' performance of certain activities of daily living, or ADLs. According to the authors, 75% of the 234 study participants improved their performance of ADLs, 65% improved their performance on related tasks such as shopping and managing medication, and 53% reduced their symptoms of depression. The authors note that with a modest cost of $2,825 per participant, the CAPABLE program has been identified as a way to improve lives and save taxpayer money, as well as enhance older adults' ability to age in place.[19] CAPABLE has since been funded by public and private funders to put the program in place in three cities in Michigan to serve 15,000 Medicare and Medicaid eligible seniors as part of Michigan Medicaid's waiver program.

Nationwide, hospitals and health systems are involved in housing security efforts to improve the health of their communities, including:

- Dignity Health, the fifth largest health system in the nation (serving California, Arizona and Nevada), has created a $100 million loan fund to develop affordable housing, provide job training, assist neighborhood revitalization, offer needed medical services, and build wealth in underserved communities.[22]
- The Mayo Clinic in Rochester, Minnesota helped to finance the state's largest community-based assisted-housing program, including the construction of more than 875 units of housing.[23]
- In Richmond, Virginia, Bon Secours Richmond Health System has been in efforts for several years to revitalize the city's East End, a low-income area of the city, both in terms of business and housing opportunities.
- As part of Columbus, Ohio's Nationwide Children's Hospital's Healthy Neighborhoods Healthy Families initiative, the hospital is giving more people access to affordable housing by eliminating vacant, blighted properties and increasing homeownership.[24]

A Chicago-based case management and supportive housing intervention facilitated by a consortium of 14 area hospitals, respite care centers, and hospitals examined the effect of transitional and subsequent supportive housing on health care use. The effort led to a greater reduction in the number of hospitalizations, hospital days, and emergency department visits among chronically ill homeless individuals. Interventions included case management as part of broader housing initiatives on a range of health outcomes.[11]

## Call to Action

Approximately 1.5 million people are homeless each year, and even more face housing insecurity. Lack of stable housing can create significantly negative effects on a person's physical and mental health. Children who face housing insecurity experience mental health problems, depression, and developmental delays more often than children who have stable housing. Research shows that addressing housing insecurity before it negatively impacts a person's health will reduce health care costs. The ACA recognizes potential cost-savings and encourages stakeholders to focus on intervention and prevention through community collaboration. By understanding the needs of the most vulnerable in their communities, hospitals and other providers can strategically address social determinants, like housing and food insecurity, to reduce costs and improve community health.

## References


(1) Kelly M. Doran, M.D., M.H.S., Elizabeth J. Misa, M.P.A., and Nirav R. Shah, M.D., M.P.H. Housing as Health Care — New York's Boundary-Crossing Experiment, *New England Journal of Medicine*, 369;25, December 19, 2013, 2374--77

(2) Kyle, Tania, and James R. Dunn. 2008. "Effects of Housing Circumstances on Health, Quality of Life and Health Care Use for People with Severe Mental Illness: A Review." *Health and Social Care in the Community* 16 (1): 1–15; Newman, Sandra, and C. Scott Holupka. 2014. "Housing Affordability and Investments in Children." *Journal of Housing Economics* 24 (C): 89–100.; The Impacts of Affordable Housing on Health: A Research Summary By Nabihah Maqbool, Janet Viveiros, and Mindy Ault April 2015, Center for Housing Policy, Insights from Housing Policy Research

(3) Coley, Rebekah Levine, Tama Levanthal, Alicia Doyle Lynch, and Melissa Kull. 2013. "Relations Between Housing Characteristics and the Well-Being of Low-Income Children and Adolescents." *Developmental Psychology* 49 (9): 1775–1789; Robison, Julie, Jean J. Schensul, Emil Coman, Gretchen J. Diefenbach, Kim E. Radda, Sonia Gaztambide, and William B. Disch. 2009. "Mental Health in Senior Housing: Racial/Ethnic Patterns and Correlates of Major Depressive Disorder." *Aging & Mental Health* 13 (5): 659–673

(4) Jelleyman, T., and Nicholas Spencer. 2008. "Residential Mobility in Childhood and Health Outcomes." *Journal of Epidemiology and Community Health* 62 (7): 584–592

(5) Bonnefoy, Xavier. 2007. "Inadequate Housing and Health: An Overview." *International Journal of Environment and Pollution* 30 (3/4): 411–429

(6) The Impacts of Affordable Housing on Health: A Research Summary By Nabihah Maqbool, Janet Viveiros, and Mindy Ault April 2015, Center for Housing Policy, Insights from Housing Policy Research. http://www2.nhc.org/HSGandHealthLitRev_2015_final.pdf

(7) http://www.chapinhall.org/research/inside/185-million-us-households-pay-more-half-their-income-housing-reducing-money-availabl

(8) Alexander, Barbara, William Apgar, Kermit Baker, and Pamela Baldwin. 2014. The State of the Nation's Housing. Boston, MA: Joint Center for Housing Studies of Harvard University

(9) Fletcher, Jason M., Tatiana Andreyeva, and Susan Busch. "Assessing the Effect of Increasing Housing Costs on Food Insecurity." Social Science Research Network, September 9, 2009.

(10) Pollack, Craig Evan, Beth Ann Griffin, and Julia Lynch. 2010. "Housing Affordability and Health Among Homeowners and Renters." *American Journal of Preventative Medicine* 39 (6): 515–521.

(11) Leveraging the Social Determinants of Health: What Works? June 2015. A review prepared for the Blue Cross Blue Shield of Massachusetts Foundation. http://www.socialserviceworkforce.org/system/files/resource/files/Social_Equity_Report_Final.pdf

(12) Larimer, M. E., Malone, D. K., Garner, M. D., Atkins, D. C., Burlingham, B., Lonczak, H. S., ... Marlatt, G. A. (2009). Health Care and Public Service Use and Costs Before and After Provision of Housing for Chronically Homeless Persons with Severe Alcohol Problems. *JAMA*, 301(13), 1349-1357. doi: 10.1001/jama.2009.414

(13) Burns, P., Sumner, G., and Lee, S. (2013). Getting Home: Outcomes from Housing High Cost Homeless Hospital Patients: Economic Roundtable.

(14) Housing as a Health Care Investment Affordable Housing Supports Children's Health By Megan Sandel, MD, MPH; John Cook, PhD, MAEd; Ana Poblacion, MSc; Richard Sheward, MPP; Sharon Coleman, MS, MPH; Janet Viveiros, MPP; and Lisa Sturtevant, PhD MARCH 2016, National Housing Conference and Children's HealthWatch. http://www.childrenshealthwatch.org/wp-content/uploads/Housing-as-a-Health-Care-Investment.pdf

(15) Buchanan, David, Romina Kee, Laura S. Sadowski, and Diana Garcia. 2009. "The Health Impact of Supportive Housing for HIV-Positive Homeless Patients: A Randomized Controlled Study." *American Journal of Public Health* 99 (S3): S675–S680; Cameron, Ailsa, Liz Lloyd, William Turner, and Geraldine Macdonald. 2009. "Working Across Boundaries to Improve Health Outcomes: A Case Study of a Housing Support and Outreach Service for Homeless People Living with HIV." *Health and Social Care in the Community* 17 (4): 388–395; Schwarcz, Sandra K., Ling C. Hsu, Eric Vittinghoff, Annie Vu, Joshua D. Bamberger, and Mitchell H. Katz. 2009. "Impact of Housing on the Survival of Persons with AIDS." *BMC Public Health* 9 (9): 220.

(16) Bailey, Kathryn, Stephanie Ettinger de Cuba, John T. Cook, Elizabeth L. March, Sharon Coleman, and Deborah A. Frank. 2011. LIHEAP Stabilizes Family Housing and Protects Children's Health. Boston, MA: Children's HealthWatch and Medical-Legal Partnership; Kirkpatrick, Shannon I., and Valerie Tarasuk. 2011. "Housing Circumstances Are Associated with Household Food Access among Low-Income Urban Families." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 88 (2): 284–296. doi: 10.1007/s11524-010-9535-4.

(17) MacRoy, Patrick, and Doug Farquhar. "Creating Healthier Housing Through Building Codes." Briefing paper for the National Healthy Housing Policy Summit, Washington, DC, May 2009.

(18) Can Hospitals Heal America's Communities? "All in for Mission" is the Emerging Model for Impact, Tyler Norris and Ted Howard, The Democracy Collaborative, http://www.rootcausecoalition.org/wp-content/uploads/2016/06/CanHospitalsHealAmericasCommunities.pdf

(19) Sarah L. Szanton, Bruce Leff, Jennifer L. Wolff, Laken Roberts and Laura N. Gitlin, Home-Based Care Program Reduces Disability and Promotes Aging In Place doi: 10.1377/hlthaff.2016.0140 Health Affairs 35, no.9 (2016):1558-1563

(20) Christopher J. Gearon, Hospitals Are in the Business of Prevention, *U.S. News & World Report*, Sept. 8, 2015, http://health.usnews.com/health-news/hospital-of-tomorrow/articles/2015/09/08/hospitals-are-in-the-business-of-prevention

(21) Living Cities: The Integration Initiative in Cleveland, Ohio - Greater University Circle Community Wealth Building Initiative: Programs and Projects Report, Year 3, http://engagedscholarship.csuohio.edu/cgi/viewcontent.cgi?article=2264&context=urban_facpub

(22) "Mission Integration Annual Report 2013," Dignity Health, https://www.dignityhealth.org/ cm/media/documents/Mission-Integration-Annual-Report.pdf, 39.

(23) David Zuckerman, Hospitals Building Healthier Communities: Embracing the anchor mission (Takoma Park, MD: The Democracy Collaborative, March 2013), 96-104.

(24) http://www.nationwidechildrens.org/healthy-neighborhoods-healthy-families-affordable-housing

(25) Children's HealthWatch calculations based on information from America's Youngest Outcasts: A Report Card on Child Homelessness. 2014. Waltham, MA: The National Center on Family Homelessness at American Institutes for Research, and the U.S. Census Bureau population estimates by individual year of age for 2014.

(26) Children's HealthWatch estimated the excess attributable fraction of hospital stays among children attributable to homelessness and applied it to data from the Healthcare Utilization Project Kids Outpatient Database to produce an aggregate national estimate of the total cost of hospital stays attributable to homelessness. For questions regarding these methods, please contact Children's HealthWatch

(27) How does transportation impact health? A Robert Wood Johnson Foundation ISSUE BRIEF October 2012, http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2012/rwjf402311

(28) Robert Puentes and Adie Tomer, The Road…Less Traveled: An Analysis of Vehicle Miles Traveled Trends in the U.S., Brookings, December 16, 2008. https://www.brookings.edu/research/the-roadless-traveled-an-analysis-of-vehicle-miles-traveled-trends-in-the-u-s/

(29) Access to Capital an Often Overlooked Social Determinant of Health, *NPA Newsletter*, Spring 2016. http://npanewsletter.com/subsites/NPAnewsletter/spring2016/

(30) More People Walk to Better Health, *CDC Vital Signs*, August 2012. http://www.cdc.gov/vitalsigns/walking/

(31) Centers for Disease Control and Prevention. (2016). Social Determinants of Health: Know What Affects Health. Retrieved from http://www.cdc.gov/socialdeterminants/index.htm

(32) Kushel, M. B., Gupta, R., Gee, L., and Haas, J. S. (2006). Housing Instability and Food Insecurity as Barriers to Health Care Among Low-Income Americans. *Journal of General Internal Medicine*, 21(1), 71–77. http://doi.org/10.1111/j.1525-1497.2005.00278.x