



UNDERSTANDING THE LINKS BETWEEN PHYSICAL INSPECTIONS OF AFFORDABLE HOUSING AND HEALTH POLICY

Introduction

This policy brief examines how the physical inspection process can promote healthy affordable housing. A review of housing quality issues linked to health and the role of physical inspections to improve health is provided.

Affordable Housing Can Provide the Foundation for Health

High quality affordable housing provides a platform to improve health by increasing the affordability of rent and providing a healthy built environment. Nationally, there is an affordable housing shortage, 40% of renters spent 35% or more of their income just for rent.¹ Housing quality contributes to one's health status in a variety of ways. Living in poorly maintained housing is associated with an exacerbation of asthma and other respiratory symptoms, neurological disorders, and an increased risk of injury and mental health problems. Health disparities often seen in low-income populations are linked to the availability of quality housing. Improving access to adequate, safe, and affordable rental options such as those funded through local, state, and federal monies offer an opportunity to promote health equity. Maintaining the quality of affordable rental options is necessary to ensure a positive lasting impact for the tenant and surrounding community.

Substandard Housing Has High Economic Costs

Since the home is the source of many environmental exposures that can negatively affect health, substandard housing itself can have high economic costs.² Conditions, like those linked to the development of lead poisoning, respiratory disorders, and chronic diseases are estimated to have significant economic costs due to increased medical expenditures for treatment and lost productivity in the workplace resulting from the illness.³⁻⁶ For example, childhood environmental exposures leading to asthma, cancer, lead poisoning, and neurobehavioral disorders are estimated to cost the nation \$54.9 billion per year (in 1997 dollars).⁶

The Link Between Housing Quality and Health: A Review of the Evidence

Living in poorly maintained housing contributes to a variety of health conditions including asthma and other respiratory symptoms, neurological disorders, injury, and mental health problems. Indoor moisture, visible mold, and pests have been associated with development of asthma and other respiratory symptoms.⁷⁻¹¹ Housing conditions also contribute to accidental injuries and deaths, as the presence of functional smoke alarms and clear means of egress are associated with a lower risk of residential fire morbidity and mortality.¹²⁻¹⁴ Housing conditions that have been linked to the development of chronic disease or chronic disease risk factors include interior and exterior housing deterioration, general poor quality of housing, lack of satisfaction with one's dwelling, and poor ventilation.¹⁵⁻¹⁸ There is weaker evidence for the impacts of housing conditions on mental health, as the effects of housing quality are difficult to separate from other housing-related factors, such as instability and disarray (i.e., housing that is cluttered or dark).¹⁹ However, well-maintained housing conditions have been associated with higher psychological wellbeing compared to poorly-maintained housing.²⁰⁻²²

Affordable Housing Serves Vulnerable Populations

Substandard housing has disproportionate negative impacts on certain subpopulations living in affordable housing. Affordable housing tenants are vulnerable due to extremely low incomes, but also 21% of households report a disabled household member and 38% are single adult households with children.²³ Specifically, African Americans are at a higher risk for asthma,^{24,25} very young children are at risk for lead exposure,²⁶ and young children and the older adults share a higher risk for injuries.^{27,28} While chronic diseases affect older adults, there is evidence that housing conditions during childhood can impact their disease development.¹⁵



Role of Affordable Housing Physical Inspections

Physical inspections monitor housing quality, act as a catalyst for tenants to report housing maintenance issues, and are used to educate tenants about how to maintain their unit. Public housing, housing assisted under certain HUD programs, and Low Income Housing Tax Credit (LIHTC) properties adhere to the Uniform Physical Condition Standards (UPCS). The UPCS inspection protocol was designed to ensure that affordable housing properties are “decent, safe, sanitary and in good repair” while maintaining objectivity and uniformity in reporting standards.²⁹ While physical inspections are based on UPCS, the inspection findings differed between housing agencies on most of the health-related housing quality issues suggesting the need to strengthen the affordable housing inspection process. Better enforcement of existing housing codes and coordination of assessment protocols could help to address housing conditions associated with health problems, such as moisture intrusion, pests and other sources of allergens, non-working smoke alarms, and unprotected stairs/windows.²⁷ With the variety of existing housing inspection protocols available for use, consideration of which tool will be the most health protective to both monitor housing quality and identify areas for repair is necessary.

Strategies to Improve the Health Protectiveness of Physical Inspections

- *Establish standardized, health protective inspection protocols.*

Protocols should include all housing quality issues, prioritize those that impose a more detrimental impact, and produce a summary measure to prioritize at-risk projects. A minimal standard of information to promote housing-related health should be defined. Health protective physical inspection tools should meet the following minimal standards: 1) inclusion of elements that capture housing-related health issues; 2) an increased depth of information about the elements; and 3) consider attributes that may be missing from existing inspection tools.

- *Raise awareness of housing-related health issues.*

Ongoing training of housing inspectors to increase awareness of housing-related health issues would increase the quality of physical inspection reports, as well as streamlining execution of physical inspections themselves.

- *Assess affordable housing properties most at risk of poor housing quality.*

A risk-based inspection agenda that focuses resources and organizes inspection schedules based on housing and tenant characteristics should be considered to protect tenants at the greatest risk of health consequences related to housing conditions.

References

1. Selected housing characteristics: 2008-2012 American Community Survey 5-year estimates. American Fact Finder; 2012. http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_DP04&prodType=table.
2. Chenoweth D, Estes C, Lee C. The economic cost of environmental factors among North Carolina children living in substandard housing. *American Journal of Public Health*. 2009;99.
3. Ackerman F, Massey R. Costs of preventable childhood illness: The price we pay for pollution. 2003.
4. Davies K. Economic costs of childhood diseases and disabilities attributable to environmental contaminants in Washington State, USA. *EcoHealth*. 2006;3(2):86-94.
5. Hackenmiller-Paradis R, Bernell S. The price of pollution: costs estimates of environmentally related disease in Oregon. *Local Environment*. 2010;15(3):281-294.
6. Landrigan PJ, Schechter CB, Lipton JM, Fahs MC, Schwartz J. Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities. *Environmental Health Perspectives*. 2002;110(7):721.
7. Antova T, Pattenden S, Brunekreef B, et al. Exposure to indoor mould and children's respiratory health in the PATY study. *Journal of Epidemiology and Community Health*. 2008;62:708-714.
8. Gunnbjörnsdóttir MI, Franklin KA, Norbäck D, et al. Prevalence and incidence of respiratory symptoms in relation to indoor dampness: The RHINE study. *Thorax*. 2006;61:221-225.
9. Jaakkola JJK, Hwang BF, Jaakkola N. Home dampness and molds, parental atopy, and asthma in childhood: A six-year population-based cohort study. *Environmental Health Perspectives*. 2004;113:357-361.
10. Litonjua AA, Carey VJ, Burge HA, Weiss ST, Gold DR. Exposure to cockroach allergen in the home is associated with incident doctor-diagnosed asthma and recurrent wheezing. *The Journal of Allergy and Clinical Immunology*. 2001;107:41-47.
11. Phipatanakul W, Celedón JC, Sredl DL, Weiss ST, Gold DR. Mouse exposure and wheeze in the first year of life. *Annals of Allergy, Asthma & Immunology*. 2005;94:593-599.
12. Istre GR, McCoy MA, Osborn L, Barnard JJ, Bolton A. Deaths and injuries from house fires. *New England Journal of Medicine*. 2001;344:1911-1916.
13. Kendrick D, Watson M, Mulvaney C, Burton P. How useful are home safety behaviours for predicting childhood injury? A cohort study. *Health Education Research*. 2005;20:709-718.
14. Lin YS. Life risk analysis in residential building fires. *Journal of Fire Sciences*. 2004;22:491-504.
15. Dedman DJ, Gunnell D, Davey Smith G, Frankel S. Childhood housing conditions and later mortality in the Boyd Orr cohort. *Journal of Epidemiology and Community Health*. 2001;55:10-15.
16. Duarte CS, Chambers EC, Rundle A, Must A. Physical characteristics of the environment and BMI of young urban children and their mothers. *Health & Place*. 2010;16:1182-1187.
17. Marsh A, Gordon D, Heslop P, Pantazis C. Housing deprivation and health: A longitudinal analysis. *Housing Studies*. 2000;15:411-428.
18. Schootman M, Andresen EM, Wolinsky FD, et al. The effect of adverse housing and neighborhood conditions on the development of diabetes mellitus among middle-aged African Americans. *Archives of Disease in Childhood*. 2007;166:379-387.
19. Suglia SF, Duarte CS, Sandel MT, Wright RJ. Social and environmental stressors in the home and childhood asthma. *Journal of Epidemiology and Community Health*. 2010;64:636-642.
20. Evans GW, Wells NM, Chan HYE, Saltzman H. Housing quality and mental health. *Journal of Consulting and Clinical Psychology*. 2000;68:526-530.
21. Evans GW, Wells NM, Moch A. Housing and mental health: A review of the evidence and a methodological and conceptual critique. *Journal of Social Issues*. 2003;59:475-500.
22. Sandel M, Wright RJ. When home is where the stress is: Expanding the dimensions of housing that influence asthma morbidity. *Archives of Disease in Childhood*. 2006;91:942-948.
23. Picture of subsidized households. 2012. <http://www.huduser.org/portal/datasets/picture/yearlydata.html#download-tab>.
24. Akinbami LJ, LaFleur BJ, Schoendorf KC. Racial and income disparities in childhood asthma in the United States. *Ambulatory Pediatrics*. 2002;2(5):382-387.
25. Akinbami LJ, Schoendorf KC. Trends in childhood asthma: prevalence, health care utilization, and mortality. *Pediatrics*. 2002;110(2):315-322.
26. Populations NRCCoMLiC, Fowler BA. Measuring lead exposure in infants, children, and other sensitive populations. *National Academy Press*; 1993.
27. Breyse P, Farr N, Galke W, Lanphear B, Morley R, Bergofsky L. The relationship between housing and health: Children at risk. *Environmental Health Perspectives*. 2004;112:1583-1588.
28. DiGuseppi C, Roberts I, Li L. Smoke alarm ownership and house fire death rates in children. *Journal of Epidemiology and Community Health*. 1998;52:760-761.
29. U.S. Department of Housing and Urban Development. Uniform physical condition standards and physical inspection requirements for certain HUD housing: Administrative process for assessment of insured and assisted properties; Final rule. 2000;65(237).

Acknowledgments

This Health Impact Assessment is supported by a grant from the Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts. The views expressed are those of the author(s) and do not necessarily reflect the views of The Pew Charitable Trusts or the Robert Wood Johnson Foundation.

The views expressed are those of the author(s) and do not necessarily reflect the official policies or views of the State of Ohio or the Ohio Housing Finance Agency (OHFA). OHFA will consider the recommendations of the HIA when planning and administering its programs and guidelines.