

Healthy Homes: A Key to Children's Health, Development, and Safety

Introduction to the Healthy Homes Issue Brief Series

What is a Healthy Home? Safe, decent, and sanitary housing has long been understood to be important for families and children. Recent years have seen the emergence of the field of "healthy housing," which promotes safe, decent, and sanitary housing as a means of preventing disease and injury.¹ The field is built on strong scientific evidence that links chemical, biological, and physical safety hazards lurking in homes to illness and death. These hazards are especially prevalent in the nation's 6 million substandard housing units, but they can also be found in newer or more expensive homes. Creating healthy homes can help safeguard the growth and development of children.²

The Healthy Homes Issue Briefs present data about three top priority areas, outline the relevant issues, suggest options for funders to help parents, service providers, and communities create healthy homes, and list resources for further learning and action.

Why are Healthy Homes important for children? Children's homes affect their health, development, and safety. Children spend 80-90% of their time indoors,³ with much of that spent at home. While at home, children may be exposed to safety hazards as well as chemical or biological hazards present in the air, in food or water, or on surfaces they touch. Because of their exposure to these hazards, millions of children each year suffer short-term injuries and illness, damage that contributes to long-term chronic illness or developmental delays, or death.⁴

Children face chemical, biological, and physical safety hazards. While generally considered safe places, children's homes sometimes contain hazards. These include toxins such as lead, mercury, radon gas, or asbestos; chemicals in pesticides, cleaning products, home furnishings, construction materials, or those found in second-hand tobacco smoke or produced by indoor heaters or furnaces. Children may be exposed to allergens produced by dust mites, molds, cockroaches, rats, mice, and pets. Unsafe stairwells or windows, standing or scalding water, hot stoves, exposed electrical outlets, and unlocked guns all can pose serious physical safety hazards for children.

Impacts on children are serious and expensive.

Chemicals can cause long-term neurological and cognitive damage and behavior problems.

They can cause cancer and exacerbate asthma, the most common childhood chronic illness.

Prenatal exposure can be especially harmful. Biological substances can cause allergic reactions and food-borne illnesses, and some can cause or worsen asthma. Physical safety hazards can lead to injuries and death. The total annual costs for environmentally attributable childhood diseases in the United States (lead poisoning, asthma, cancer, and neurobehavioral disorders) is estimated to be approximately \$54.9 billion – an estimate that does not include the costs of unintentional injuries and does include the asthma due to outdoor rather than indoor pollutants.⁵ Although the precise cost of exposure to hazards at home is therefore unknown, the total is certainly tens of billions of dollars and reflects pain and suffering, medical costs, and lost opportunities when exposed children are unable to reach their full potential.

About the Healthy Homes Issue Briefs:

These issue briefs focus on three of the top priorities in the healthy homes field:

- Childhood lead poisoning;
- Childhood asthma and air quality in the home; and
- Unintentional injury of children in the home

continued

Themes in the Healthy Homes Issue Briefs

Younger children are more vulnerable. Infants and toddlers are more vulnerable to toxins than older children or adults because (1) young children have proportionately greater exposure (they drink more water, eat more food, and breathe more air per pound of body weight); (2) their rapidly developing bodies are more sensitive to the effects of toxins and are less able to detoxify and excrete certain chemical pollutants; and (3) their behavior (playing on the ground, putting things in their mouths) increases their risk.³ They are also more likely to suffer unintentional injuries, because they do not understand or cannot avoid dangers.

Multiple hazards compound the danger, and poor children are most at-risk. Children who live in low-income, deteriorating housing are at highest risk for exposure to multiple health and safety hazards. For example, mold grows where old plumbing leaks. Cockroaches and dust mites thrive on mold. Parents then use pesticides to eliminate the cockroaches.⁶ That same deteriorating housing may be filled with dust tainted by decaying lead-based paint. Before long, children have been exposed to a brew of toxic substances, each of which is dangerous on its own, but whose combined effects are unknown. These same children live in homes that are least likely to have safety features such as working fire alarms or guards on windows and stairwells, and they live in communities with more pollution,⁷ but worse health care services. These issue briefs report the results: Children who live in low-income communities, deteriorating homes, and rental and public housing (disproportionately children of color) are most likely to suffer lead poisoning, asthma, and unintentional injuries.

Interconnected risks require a comprehensive approach. Because of the interconnected nature of the risk factors, agencies such as the federal Department of Housing and Urban Development have adopted an approach that addresses housing-related hazards as a whole, rather than focusing on one hazard at a time, and these issue briefs recommend that approach as well.⁴

Primary prevention and community-wide action are the most effective strategies. Regulation and changes in product design can be more effective than trying to change individual behavior. For instance, child-proof caps on medicine bottles, regulations to limit water temperatures in water heaters, and bans on leaded gasoline all produced large health and safety improvements.^{8,9} Creating and maintaining healthy homes will require such changes and enforcement of existing building codes, regulations, and ordinances.

Indoor hazards often begin outdoors. This series focuses on issues inside the home, but the origins of many indoor hazards begin outdoors: polluted outdoor air seeps indoors; chemicals in a community's water and food supply enter kitchens; and farmworkers track pesticides from the fields into their homes. This is another reason why community-wide, comprehensive action is needed to address the ills caused by environmental hazards.

Eliminating exposure to tobacco smoke will lead to multiple benefits. Perhaps no single environmental contaminant is more dangerous than tobacco smoke. The issue brief on indoor air quality and asthma reports that eliminating children's exposure to second-hand smoke can decrease the severity of asthma. Eliminating second-hand smoke, beginning with prenatal exposure, could also decrease rates of low birthweight and cognitive/neurological damage; and, as children get older, SIDS, respiratory illnesses, ear infections, cancer, and injuries and deaths due to fires caused by smoldering cigarettes.^{10,11}

Problems with multiple causes require multiple solutions. These issue briefs examine unintentional injuries, asthma, and lead poisoning through the lens of healthy homes, and recommendations therefore focus on reducing hazards within homes. But, addressing these ills in a comprehensive fashion will require a focus on risks occurring outside homes too. For example, the single largest cause of injuries among children are motor vehicle injuries, so reducing children's injuries requires solutions such as car seats, air bags, and enforcement of existing seat-belt and driver-license laws. Likewise, addressing lead poisoning or asthma will require eliminating children's exposure to hazards in school buildings and child care programs as well as in their homes.

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Resources

Government Agencies:

Centers for Disease Control & Prevention (CDC)
Healthy Homes Initiative: www.cdc.gov/healthyplaces/healthyhomes
CDC National Center for Environmental Health, Childhood Lead Poisoning Prevention Program: www.cdc.gov/nceh/lead/
CDC National Asthma Control Program: www.cdc.gov/asthma/
CDC National Center for Environmental Health, Air Pollution & Respiratory Health Program: www.cdc.gov/nceh/air-pollution
CDC National Center for Injury Prevention & Control: www.cdc.gov/ncipc/

U.S. Environmental Protection Agency

General information: www.epa.gov/epahome/children
Childhood lead poisoning: www.epa.gov/lead/
EPA Office of Children's Health Protection: <http://yosemite.epa.gov/ochp/ochpweb.nsf/content/homepage.htm>
EPA Office of Prevention, Pesticides and Toxic Substances: www.epa.gov/oppts/
EPA National Center for Environmental Assessment: www.epa.gov/ncea/
EPA Smoke-free Homes and Cars Program: www.epa.gov/smokefree/

U.S. Department of Housing and Urban Development

The Healthy Homes Initiative: www.hud.gov/offices/lead/hhi/index
HUD Office of Healthy Homes & Lead Hazard Control: www.hud.gov/offices/lead/

Consumer Product Safety Commission: www.cpsc.gov
National Institute of Environmental Health Sciences, Center for Children's Environmental Health & Disease Prevention Research
General information: www.niehs.nih.gov/health/index.cfm

Partners in Information Access for the Public Health Workforce (links to several relevant sites):
<http://phpartners.org/cehir/sampler.html>

Non-profit Organizations

Alliance for Healthy Homes: www.afhh.org
Allies Against Asthma: www.asthma.umich.edu/
American Academy of Pediatrics
The Injury Prevention Program: www.aap.org/family/tippmain.htm
Environmental health: www.aap.org/healthtopics/environmentalhealth.cfm
Asthma & Allergy Foundation of America: www.aafa.org
Center for Health, Environment and Justice: www.chej.org
Children's Environmental Health Network: www.cehn.org
Coalition to End Childhood Lead Poisoning: www.leadsafe.org
Environmental Working Group: www.ewg.org
Healthy Homes Partnership: www.uwex.edu/healthyhome
Home Safety Council: www.homesafetycouncil.org
National Center for Healthy Housing: www.centerforhealthyhousing.org
National Safety Council: www.nsc.org