

# THE IMPACT OF HOUSING QUALITY ON HEALTH

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Office of Lead Hazard Control and Healthy  
Homes (OLHCHH)

*U.S. Department of Housing and Urban  
Development (HUD)*



# What is OLHCHH?

- The Office of Lead Hazard Control and Healthy Homes (OLHCHH) is an office within the Department of Housing and Urban Development (HUD) that protects children and families from health and safety hazards in housing.
- The Office was established in 1992 as the Office of Lead Based Paint Poisoning Prevention.
- 5 Divisions:
  - Programs Division
  - Regional Management and Technical Services Division
  - Lead Programs Enforcement Division
  - Grant Services Division
  - Policy and Standards Division

# OLHCHH's Mission, Vision, and Goals

## Mission

To help all Americans, but especially children and other vulnerable populations in low-income households, reach their full potential by making homes safe and healthy.



## Vision

To lead the nation to a future where homes are both affordable and designed, constructed, rehabilitated, and maintained in a manner that supports the health and safety of occupants.



## Goals

Building a National  
Framework

Creating Healthy Housing  
through Key Research

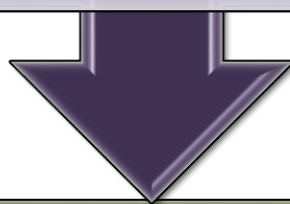
Mainstreaming the  
Healthy Homes Approach

Enabling Communities to  
Create and Sustain  
Healthy Homes

# Strategy for Action

## Vision

To substantially reduce the number of American homes with residential health and safety hazards



## Goals

Establish Healthy  
Homes  
Recommendations

Encourage Adoption  
of Healthy Homes  
Recommendations

Create and Support  
Training and  
Workforce  
Development to  
Address Health  
Hazards in Housing

Educate the Public  
about Healthy  
Homes

Support Research  
that Informs and  
Advances Healthy  
Housing in a Cost-  
Effective Manner

# What Does OLHCHH Do Now?

## Grants for Producing Lead-Safe and Healthy Housing Units

- OLHCHH provides and monitors funding to states and local governments to produce lead-safe and healthy housing units

## Technical Studies Grants (a.k.a. Research Grants)

- OLHCHH provides and monitors funding to grantees to research methods, costs, and health benefits of making homes safe and healthy

## Enforcement

- OLHCHH enforces the Lead-Based Paint Disclosure Rule and works with HUD program offices on compliance with the Lead Safe Housing Rule

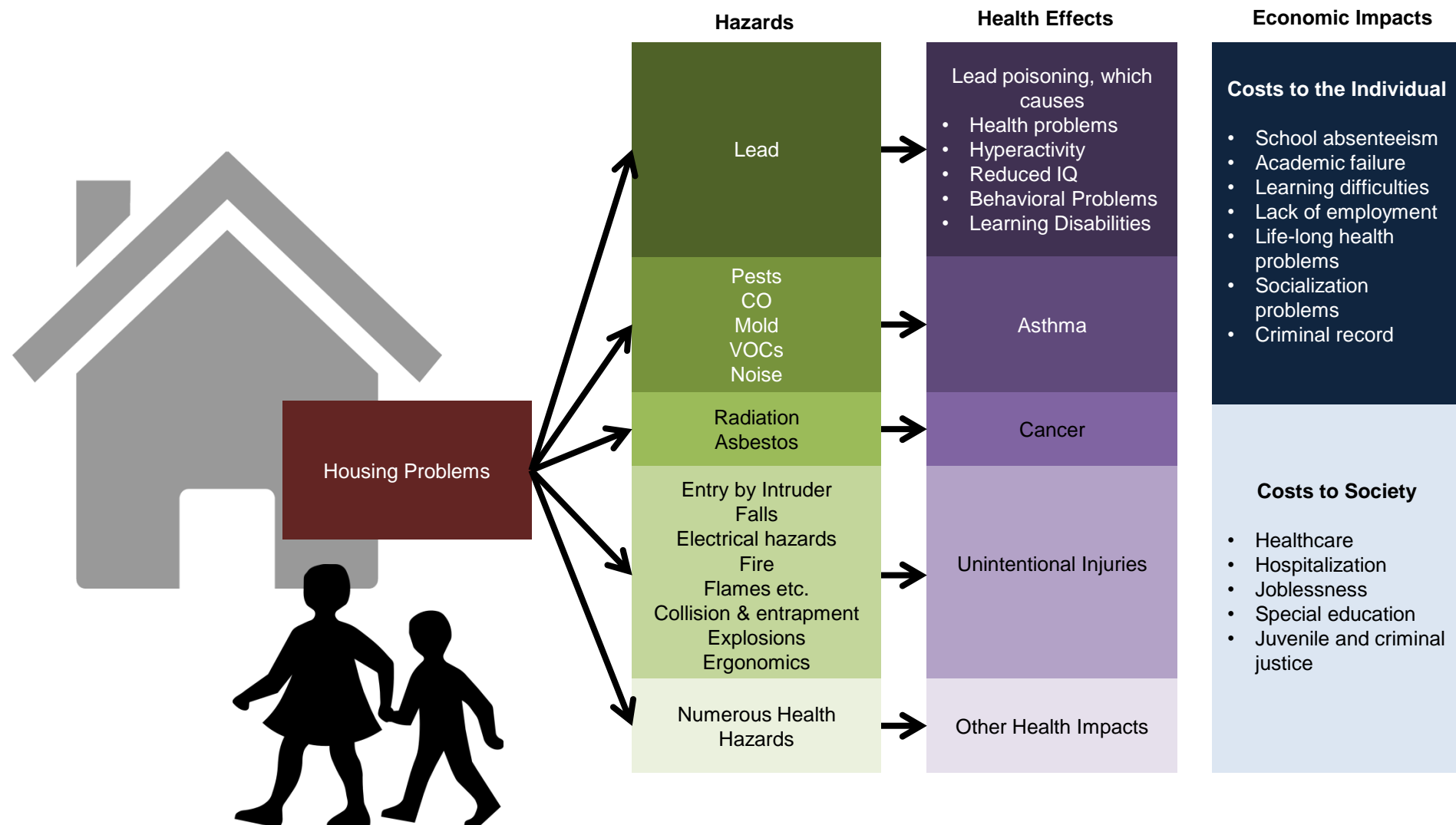
## Guidance and Performance Criteria

- OLHCHH develops and promotes development of healthy homes guidance and performance criteria

## Outreach

- OLHCHH provides education and outreach to homeowners, tenants, and stakeholders on how to make homes safe and healthy

# What is Unhealthy Housing?



# Hazards

**These are the health and safety hazards examined  
by the Healthy Homes Rating System:**

Damp & Mold Growth	Cold	Heat	Asbestos and man-made fibers	Biocides	Carbon Monoxide et al.
Lead	Radiation	Uncombusted fuel	Volatile organic compounds	Crowding and Space	Entry by Intruders
Lighting	Noise	Domestic Hygiene etc.	Food Safety	Personal Hygiene	Water Supply
Falls in baths etc.	Falls on the level	Falls on stairs etc.	Falls from windows etc.	Electrical hazards	Fire hazards
Hot surfaces etc.	Collision/Entrapment	Ergonomics	Explosions	Structural collapse	

# Health Effects

**Health and safety hazards trigger, worsen, or cause a wide range of health effects. Here are some of the most prevalent housing-related health effects:**

Asthma &  
allergies

Cancer

Lead poisoning

Unintentional  
injuries

Death

Depression

Anxiety

Cardiovascular  
conditions

Arthritis

Respiratory  
conditions

Genitourinary  
disease

Unconsciousness

Cognitive  
impairment

Headaches

Mental disorders

Gastrointestinal  
illness

Skin infections

Neurological  
problems

Mental  
retardation

Behavioral  
problems



# Economic Impacts

**Health and safety hazards impose a considerable economic burden on Americans living in unhealthy housing and on society as a whole.**

## Costs to the Individual

School  
absenteeism

Academic  
failure

Learning  
difficulties

Lack of  
employment

Life-long  
health  
problems

Socialization  
problems

Criminal  
record

## Costs to Society

Healthcare

Hospitalization

Joblessness

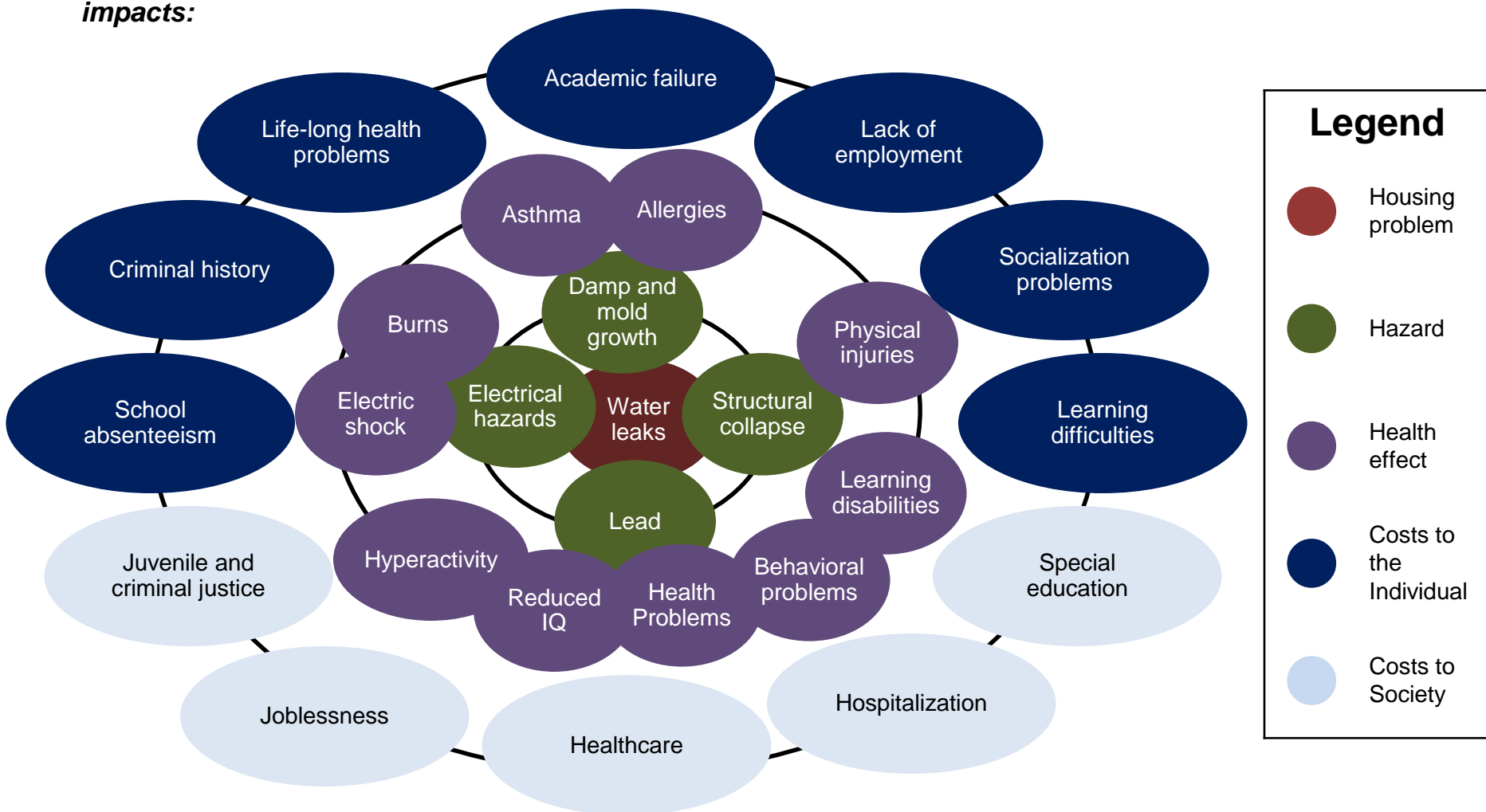
Special education

Juvenile and  
criminal justice

# Multiple Impacts

*Housing problems cause a ripple effect of impacts.*

***Here is an example of how a single housing problem can lead to multiple health effects and economic impacts:***



# Housing Quality and Health:

## *Asthma & Allergies*

### Related Hazards<sup>1</sup>

Domestic hygiene, pests, and refuse

Carbon monoxide and fuel combustion products

Damp & mold growth

VOCs

Noise<sup>4</sup>

### Extent of the Problem<sup>2</sup>

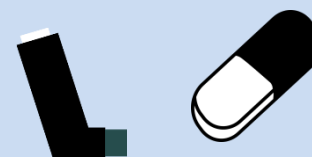
**~24 million homes**  
*have elevated levels of four or more allergens that have been associated with symptoms of allergic asthma among residents.*

**Asthma**  
*affects*  
**18.7 million**  
*U.S. adults and*  
**6.8 million**  
*U.S. children.*



### Economic Impact<sup>3</sup>

**\$3.5 billion per year**  
*for asthma due to dampness and mold in the home.*



1. (OLHCHH, 2014, Healthy Homes Rating System Operating Guidance)
2. (The number of homes was calculated by multiplying 18% (Salo et al., 2008) by 133 million (HUD & Census, 2013, American Housing Survey); CDC, 2012)
3. (Mudarri & Fisk, 2007)
4. Children under combined exposure to traffic related noise and air pollution have been found to have relative risks of chronic bronchitis, asthma and skin allergies, which cannot be explained by air pollution alone.

# Housing Quality and Health: *Cancer*

## Related Hazards<sup>1</sup>

Radiation

Asbestos

## Extent of the Problem<sup>2</sup>

**6.8 million homes**

*have radon exposures above  
the current EPA action level.*

**Lung cancer**

*from radon exposure causes*

**21,000 deaths**

*in the U.S. each year.*



## Economic Impact<sup>3</sup>

**> \$2 billion per year**  
*for radon-induced lung  
cancer deaths*



1. (OLHCHH, 2014, Healthy Homes Rating System Operating Guidance)

2. (EPA, 2013; EPA, 2003)

3. (Oster, Colditz, Kelley, 1984)

# Housing Quality and Health: *Lead Poisoning*

## Related Hazards<sup>1</sup>

### Lead hazards, from

- Chipping, peeling, flaking, chalking paint in **houses built before 1978**
- Lead contaminated soil
- Lead containing household items or products

## Extent of the Problem<sup>2</sup>

### 23.2 million homes

*have at least one lead-based paint hazard.*

### Lead poisoning

*affects*

**535,000**

*U.S. children ages 1-5.*



## Economic Impact<sup>3</sup>

### \$5.9 billion

*per year in medical costs and*

### \$50.9 billion

*per year in lost productivity due to cognitive impairment.*



1. (OLHCHH, 2014, Healthy Homes Rating System Operating Guidance)

2. (Dewalt et al. 2015; Jacobs et al. 2002)

3. (Trasande & Lui, 2011)

# Housing Quality and Health:

## *Unintentional Injuries*

### Related Hazards<sup>1</sup>

Entry by Intruder

Falls

Electrical hazards

Fire

Flames, hot surfaces, etc.

Collision & entrapment

Explosions

Ergonomics

### Extent of the Problem<sup>2</sup>

**18,000 deaths**

*related to injuries occur  
annually in U.S. homes.*

**12 million nonfatal  
injuries**

*occur annually in U.S. homes.*



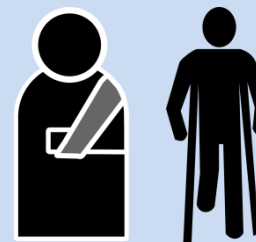
### Economic Impact<sup>3</sup>

**> \$200 billion**

*annually in direct and indirect  
costs, with*

**\$90 billion**

*due to falls alone.*



1. (OLHCHH, 2014, Healthy Homes Rating System Operating Guidance)

2. (Mack & Liller, 2012)

3. (Zaloshnja et al., 2005)

# American Housing Survey

- According to the American Housing Survey (2013), almost **6.0 million** homes (or 5% of all occupied units) have moderate or severe physical problems.
- Most common housing problems:

Signs of cockroaches in the last 12 months

• 11.9 million homes (10% of all occupied units)

Signs of mice in the last 12 months

• 10.6 million homes (9% of all occupied units)

Water leakage from outside structure

• 9.5 million homes (8% of all occupied units)

Fuses or breakers blown in the last 3 months

• 8.2 million homes (7% of all occupied units)

Water leakage from inside the structure

• 7.9 million homes (7% of all occupied units)

# Burden of Housing Costs

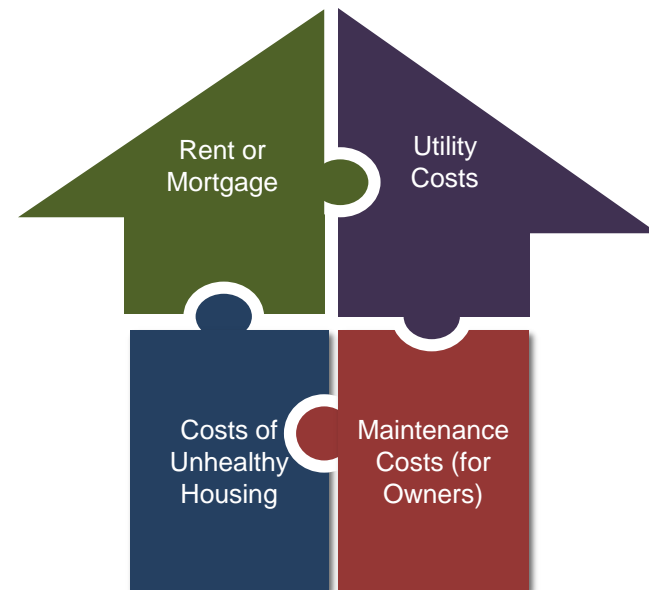
- No one, of any economic class, should have to choose between a home that is affordable and one that is healthy for his or her loved ones.
- However, according to the American Housing Survey, more people chose their current house for “financial reasons” than for any other reason (quality of construction, neighborhood, layout, design, etc.).





# Housing Costs as a Percent of Income

- Both owners and renters spend a high percent of their income on housing costs\*.



***The costs of living in unhealthy housing are a piece of the housing cost puzzle.***

	All occupied units	Owner-occupied	Renter-occupied
Median monthly housing <sup>1</sup> cost	\$891	\$929	\$850
Median monthly housing cost as a % of income	23%	19%	33%

\* Housing costs include rent or mortgage payments, utility costs, property insurance, etc.

(HUD & Census, 2013, American Housing Survey)

# Why Does Our Work Matter?

- It helps children and other vulnerable populations reach their full potential by
  - Preventing injuries and diseases;
  - Lowering healthcare costs;
  - Increasing school and work performance; and
  - Decreasing the number of school and work days missed due to injuries and diseases.
- It frees up family expenses that would have been spent on healthcare for other critical needs, such as rent or nutritious food.
- It saves money and lives.
  - Studies have shown that lead and healthy homes Interventions are *effective* and are more *cost-effective* than conventional maintenance.



# Lead

- Lead poisoning is entirely preventable through remediation.
- Once a child has been poisoned, the impairment it causes may be irreversible:
  - Reduced IQ
  - Behavioral problems
  - Learning disabilities
- There is no safe blood lead level.

# Healthy Homes

- Lead is a major public health problem, but focusing **only** on addressing lead hazards is not the best use of resources.
- Many housing-related health hazards share common problems.
- Overall health and wellness is based on many factors.
- Prevention requires identifying and correcting those causes of illness to increase overall health and wellness.



*Healthy Homes Model, from Advancing Healthy Housing: A Strategy for Action*

# Return on Healthy Homes Investments

## Inputs

*For every \$1 spent on **asthma reduction** programs<sup>1</sup>*

*For every \$1 spent on **lead hazard control** programs<sup>2</sup>*

*For every \$1 spent on **radon mitigation** programs<sup>3</sup>*

## Return On Investment (ROI)

*...there is a return of between \$5.30 and \$14.00.*

*...there is a return of between \$17 and \$221.*

*...there is a return of \$4.95.*

## Outcomes

- Reduced healthcare costs
- Increased school attendance
- Increased employment attendance
- Increased income due to attendance
- Fewer deaths

1. (Nurmagambetov et al., 2011)

2. (Gould, 2009)

3. (Healthy Housing Solutions, 2014)







# OLHCHH Grant Programs

- **Grants for Producing Lead-Safe and Healthy Housing Units**
  - 2 grant programs:
    - Lead Based Paint Hazard Control Grants
    - Lead Hazard Reduction Demonstration Grants
  - Grantees (“Lead & Healthy Homes Grantees”)
    - Grantees of these programs are state, local, or tribal governments.
- **Technical Studies Grants (a.k.a. Research Grants)**
  - 2 grant programs:
    - Healthy Homes Technical Studies Grants
    - Lead Technical Studies Grants
  - Grantees (“Technical Studies Grantees”)
    - Grantees are academic institutions and state, local, and tribal governments.



# Hazards Identified by Lead & Healthy Homes Grantees

*Of the 6,588 units completed by our lead and healthy homes grantees in FY15 . . .*

Type of hazard addressed	# of housing units in which type of hazard was addressed	# in target population benefitting from intervention
<b>Lead</b> hazards were addressed in . . .	<b>6,588</b> housing units <sup>1</sup> 	<b>6,537</b> children under 6 lived <sup>2</sup> in housing units where lead hazards were addressed. 
<b>Asthma and Allergy</b> hazards were addressed in . . .	<b>1,588</b> housing units <sup>1</sup> 	<b>2,948</b> children under 18 lived in housing units where asthma and allergy hazards were addressed. 
<b>Unintentional Injury</b> hazards were addressed in . . .	<b>1,516</b> housing units <sup>1</sup> 	<b>6,293</b> adults and children lived in housing units where unintentional injury hazards were addressed. 




1. (Healthy Homes Grant Management System data pull and analysis; in some cases, a multiplier was used to ensure consistency with previously reported data)
2. For purposes of this slide, "lived" includes visiting children under 6.




# Funding Opportunities


- Assessing Need and getting data
  - # of pre 1978 Housing
  - # of families at or below 80% and 50% AMI with children under the age of 6
- Resource and Gap assessment
  - Match Funding
  - Referral Points
  - Gap Funding for issues that are assessed but don't qualify for OLHCHH Funding
  - Gap Service Providers to address as many issue impacting the families you serve
- Connecting Community Champions to the problems identified
  - NGO, Health Department and assoc. programs, physicians/clinics, Public Housing Authorities, Neighborhood Services, Public School and Board of Education, local business
- NOFA Posting
- Award Selection
- Get Started!!!


# Enforcement



**Protect Your Family From Lead in Your Home**

 **EPA** United States Environmental Protection Agency

 United States Consumer Product Safety Commission

 United States Department of Housing and Urban Development

September 2013

- The Enforcement Division...
  - Enforces the **Lead-Based Paint Disclosure Rule**
  - Works with HUD program offices on compliance with the **Lead Safe Housing Rule**
- OLHCHH's enforcement efforts have resulted in:
  - Over **188,000** units made lead-safe and
  - Almost **\$1.5 million** in penalties
  - In at least **20** states
  - Since **1999**

# Guidance and Performance Criteria

FIGURE 5.4 Forms of Paint Deterioration



FIGURE 5.4a Peeling paint

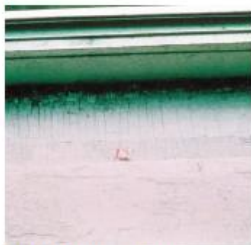


FIGURE 5.4b Alligatoring paint



FIGURE 5.4c Blistering paint



FIGURE 5.5 Baseboard showing a de minimis amount of deteriorated paint.



FIGURE 5.7 Impact surface on door and frame.

- **Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing**
  - OLHCHH has published two editions of The Guidelines, which is a technical manual for lead hazard evaluation and control in federally-assisted housing.
- **The Healthy Homes Guidance Manual**
  - OLHCHH promulgated a Healthy Homes Program Guidance Manual to provide practical guidance for successfully developing and implementing a local healthy homes program.
- **The Healthy Homes Rating System**
  - OLHCHH developed the Healthy Home Rating System (HHRs), a risk assessment system to identify the likelihood and impact on resident health from housing-related health hazards such as radon, lead-based paint, carbon monoxide, fall hazards, and more.

# Outreach

- **OLHCHH's Website**

- OLHCHH maintains a website that has information about upcoming events; information about our programs; and resources for homeowners, tenants, and stakeholders.  
[http://portal.hud.gov/hudportal/HUD?src=/program\\_office/s/healthy\\_homes/](http://portal.hud.gov/hudportal/HUD?src=/program_office/s/healthy_homes/).

- **The Healthy Homes Insider eNewsletter**

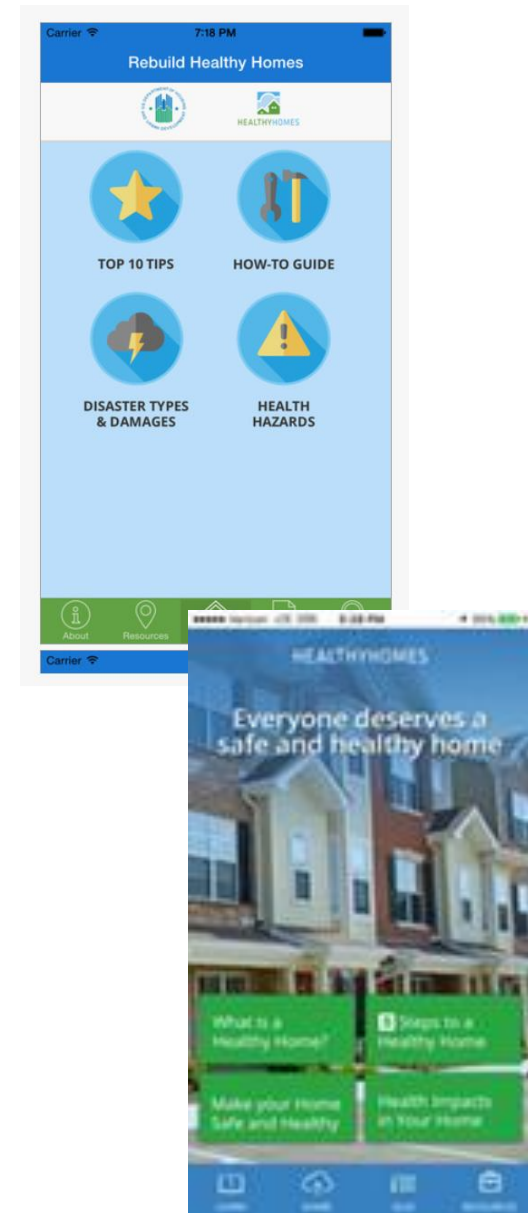
- OLHCHH publishes a quarterly eNewsletter (called the "Healthy Homes Insider") for stakeholders, homeowners, and tenants. The eNewsletter keeps readers in the know on making homes safe and healthy, cutting-edge research, and other important information.

- **Disaster Recovery**

- OLHCHH is working with FEMA, EPA, HHS, OSHA, other offices within HUD, and external partners to integrate healthy homes principles into disaster recovery materials. OLHCHH's disaster recovery materials are available at  
[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/healthy\\_homes/outreach](http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/outreach).

- **Rebuild Healthy Homes App and Healthy Homes Basics App**

- OLHCHH developed an application titled Rebuild Healthy Homes. It is a "how-to-guide" on safely reentering your home after a disaster. It is available in iTunes and Google Play.



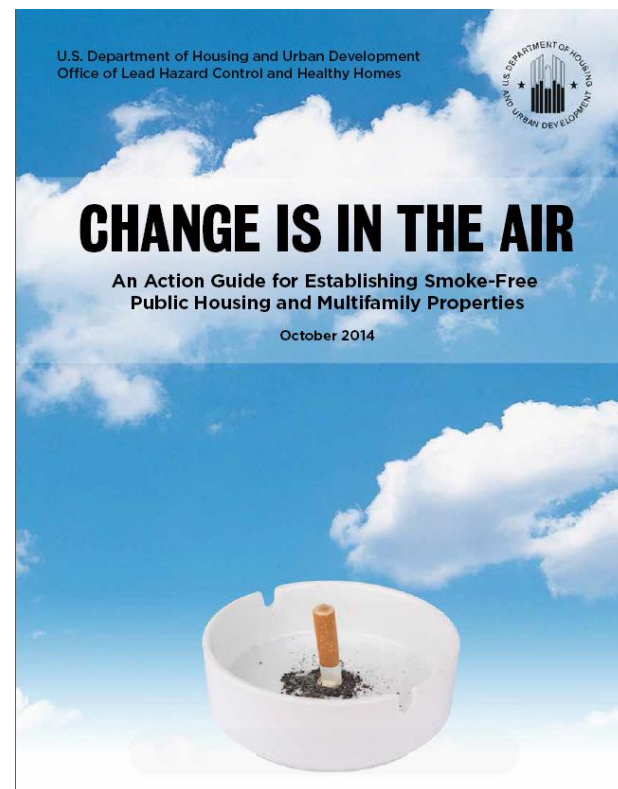
# Cross-Cutting Initiatives

- **Smoke-free Public Housing**

- PIH proposed a rule on November 17, 2015 that would make the Nation's public housing smoke-free.
- OLHCHH and Public & Indian Housing (PIH) are working together to promote smoke-free public housing.
- As of September 30, 2015, 612 PHAs have voluntarily implemented smoke-free housing policies.
- OLHCHH and PIH developed smoke free tool kits for public housing agency management and residents
- OLHCHH and PIH published "Change is in the Air" Action Guide  
(<http://portal.hud.gov/hudportal/documents/huddoc?id=SMOKEFREEACTIONGUIDE.PDF>)

- **Medicaid Reimbursements for Lead Poisoning Follow-Up and Home-Based Asthma Assessments**

- OLHCHH has collaborated with other agencies, practitioners, and insurance payers to expand Medicaid services and private insurance to provide healthcare financing for lead poisoning follow-up and home-based asthma services.
- OLHCHH is conducting asthma summits to promote insurance reimbursements for asthma home assessments and interventions



# Cross-Cutting Initiatives (Cont.)

- **Implementation of the Federal Radon Action Plan**

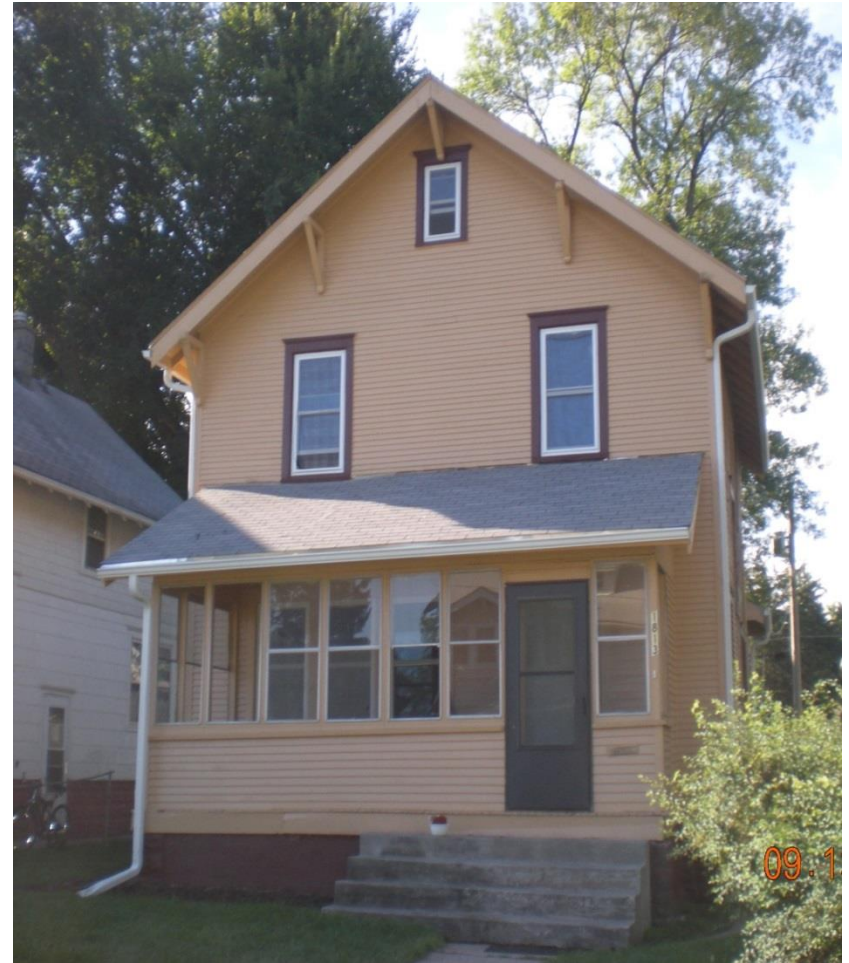
- OLHCHH is working to more explicitly include radon testing and intervention in HUD's programs.
- OLHCHH worked to develop and implement new radon testing and mitigation requirements by the Office of Multifamily Housing
- OLHCHH is working to encourage/ require OLHCHH grant recipients to test for and mitigate radon hazards

- **Participation on Federal and Interagency Workgroups**

- Steering Committee of the Federal Action Plan to Reduce Asthma Disparities
- Healthy People 2020 Federal Interagency Workgroup



# Lead Based Paint Abatement: Before and After



# Lead Based Paint Abatement: Before and After

03.2





# Healthy Homes Intervention: Before



# Healthy Home Intervention: After



# What's Next?

- Continue implementation of activities that will fulfill the goals outlined in our *Strategy for Action*
- Continue to providing funding for grant programs (research grants and grants for producing lead-safe and healthy units)
- Continue to monitor enforcement and compliance with the Lead Safe Housing Rule, Lead Disclosure Rule, and Renovation, Repair, and Painting (RRP) Rule
- Expand our Healthy Homes Grants Management System (HHGMS) to include a more robust evaluation and review of “outcomes”



# What's Next?

- **Smoke Free Housing**

- Support implementation of PIH's proposed rule to require PHAs to adopt smoke-free policies.
- Encourage our grantees to assess for smoking and provide program guidance on development and implementation of smoke free housing policies with the property owners they work with





# What's Next?



- **Continue Marketing and Outreach efforts**
  - Develop an awareness and social media calendar
  - Launch [healthyhomes.hud.gov](http://healthyhomes.hud.gov)
- **Continue and expand Disaster Recovery Efforts**
  - Continue to create resources for people coming home after disasters and disaster recovery workers
- **Radon**
  - Consider expanding radon testing requirements to other types of housing
- **Pay for Success**
  - Monitor implementation of the Pay for Success program and report outcomes



# What's Next?

- Continue hosting National Healthy Homes Conferences
- Assist grantees in identifying potential local philanthropic partners
- Share data and identify “gaps” in our data and information
- Other ideas



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