10 Policies in Childhood Lead Poisoning Prevention

David E. Jacobs, PhD, CIH
Chief Scientist, National Center for Healthy Housing

New York State Department of Health
Childhood Lead Poisoning Primary Prevention Program
June 2018

National Center for HEALTHY HOUSING

Webinar Goals

- Learn more about 10 Policies to Prevent and Respond to Childhood Lead Exposure a recently released report from The Health Impact Project.
- Hear about fourteen case studies about lead poisoning and prevention initiatives around the country that were developed and released in conjunction with the 10 Policies report.
- Discuss ways CLPPPP grantees can cite, use, and leverage these new resources.

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Guest Presenter

Dave Jacobs, PhD, CIH

10 Policies to Prevent and Respond to Childhood Lead Exposure

An assessment of the risks communities face and key federal, state, and local solutions

THE PEW CHARITABLE TRUSTS

Robert Wood Johnson Foundation

Why care about another lead report?

- Facts Are Stubborn Things, not “Alternative” Things or Fake News
- Science and Lead Poisoning Policy
- Most of Human History and the Challenge to the Enlightenment
- The first major lead report in 17 years

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ASPINALL'S ENAMEL
SURPASSES ALL OTHERS.
AVOID IMITATIONS.
THE FINEST COLORS IN THE WORLD
1837
LEAD
IS NOT MADE WITH LEAD AND IS NON POISONOUS
ASPINALL'S
OXIDIZED
ENAMEL
WORKS, NEW CROSS, LONDON
COLOURS PERFECT
SIXTY YEARS EVOLUTION IN DECORATIVE ART
1897
PARIS. 24 RUE ALIBERT
NEW CROSS LONDON. S.E.
NEW YORK. 98/100 BERKMAN

European Countries That Signed the Ban on Residential Lead Paint (by 1927)

- Austria
- Belgium
- Bulgaria
- Czechoslovakia
- Estonia
- France
- Great Britain
- Greece
- Latvia
- Poland
- Romania
- Spain
- Sweden
- Others
- US Ban - 1978

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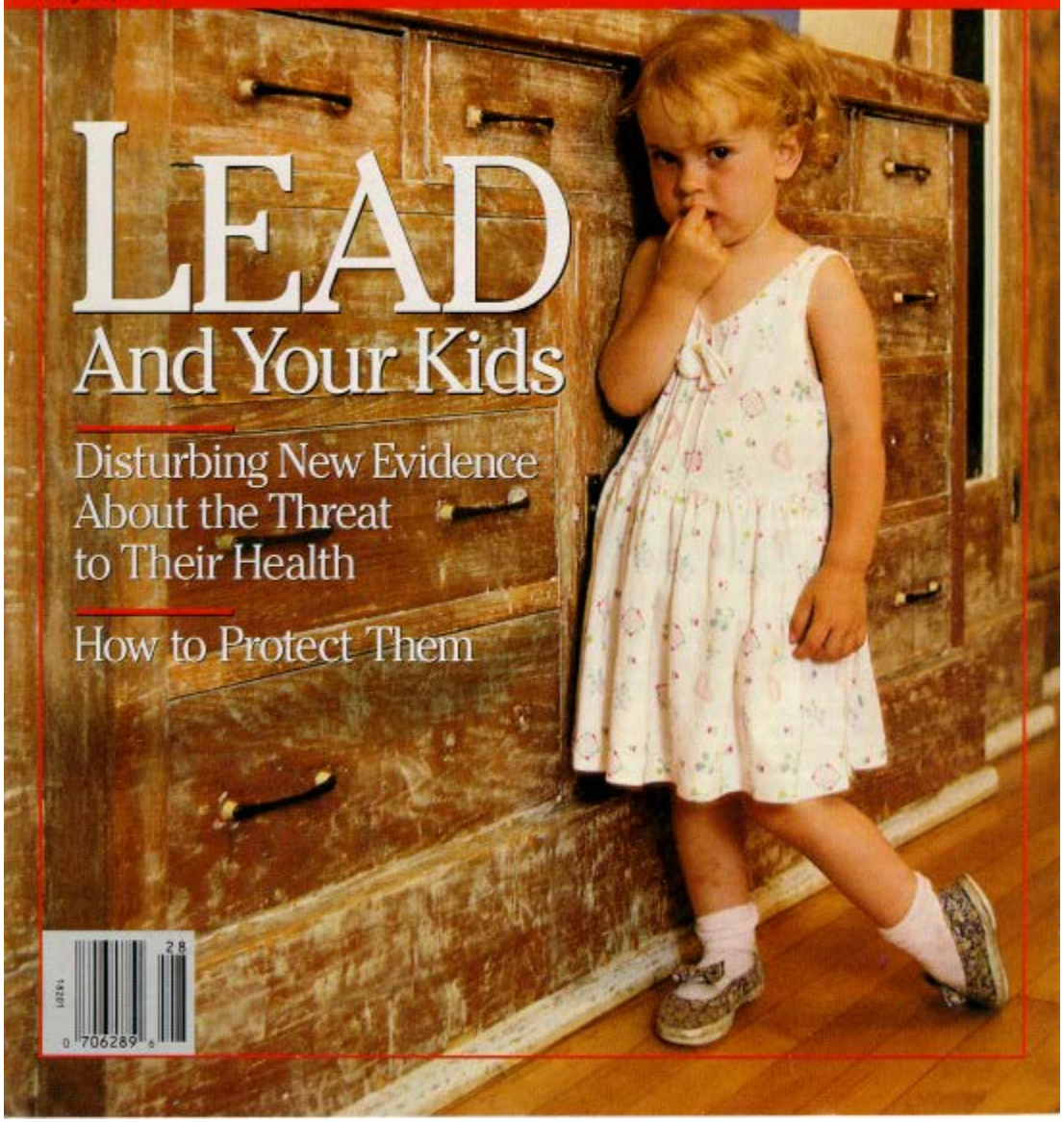
Newsweek
July 15, 1991

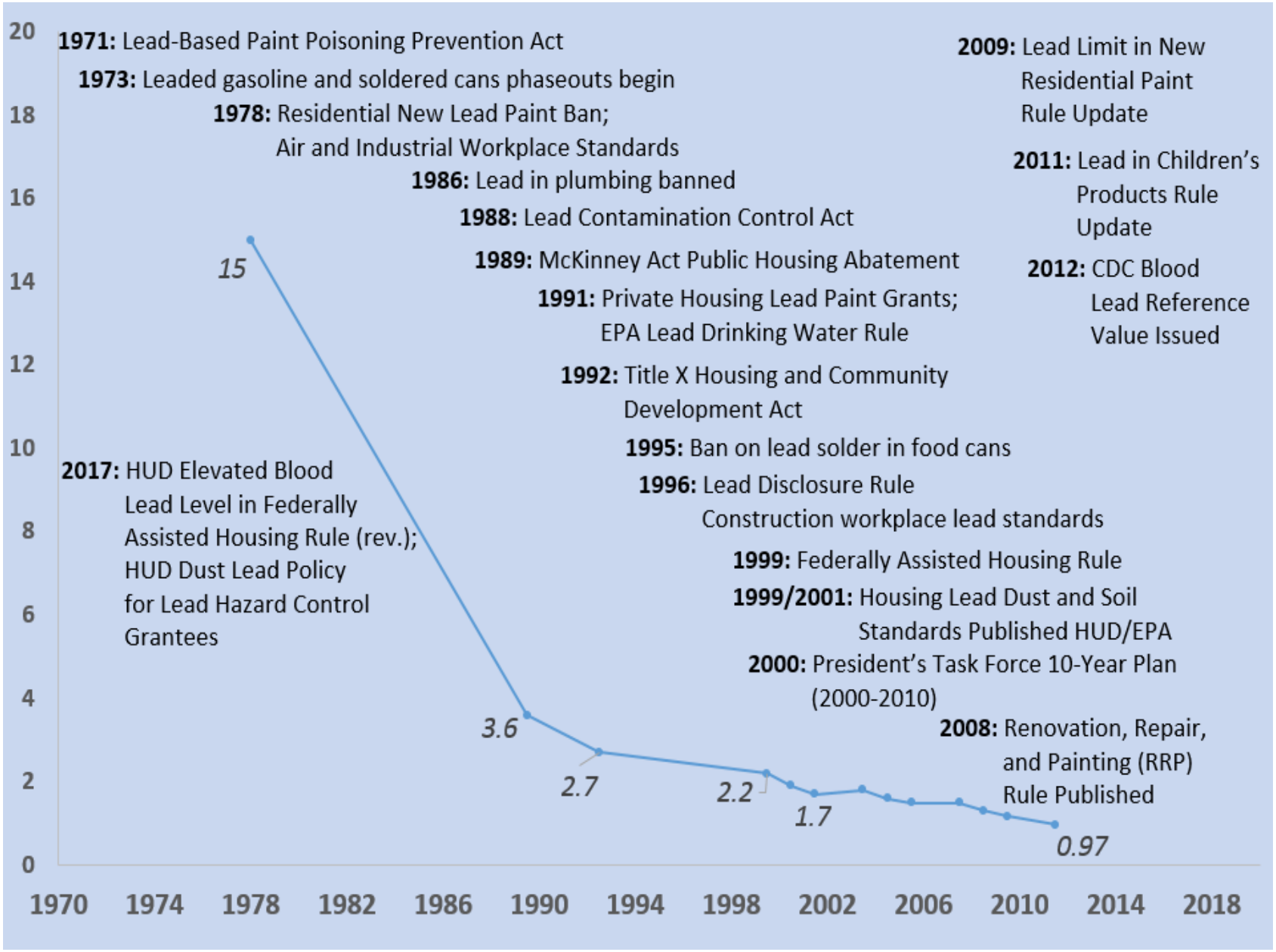


LEAD
And Your Kids

Disturbing New Evidence About the Threat to Their Health

How to Protect Them

U.S. Policies vs. Children's Average Blood Lead



Has the Lead Problem Been Solved?

National Center for HEALTHY HOUSING

FEBRUARY 1, 2016

TIME

The Poisoning Of An American City

Toxic water. Sick kids. And the incompetent leaders who betrayed Flint

By Josh Sanburn

time.com

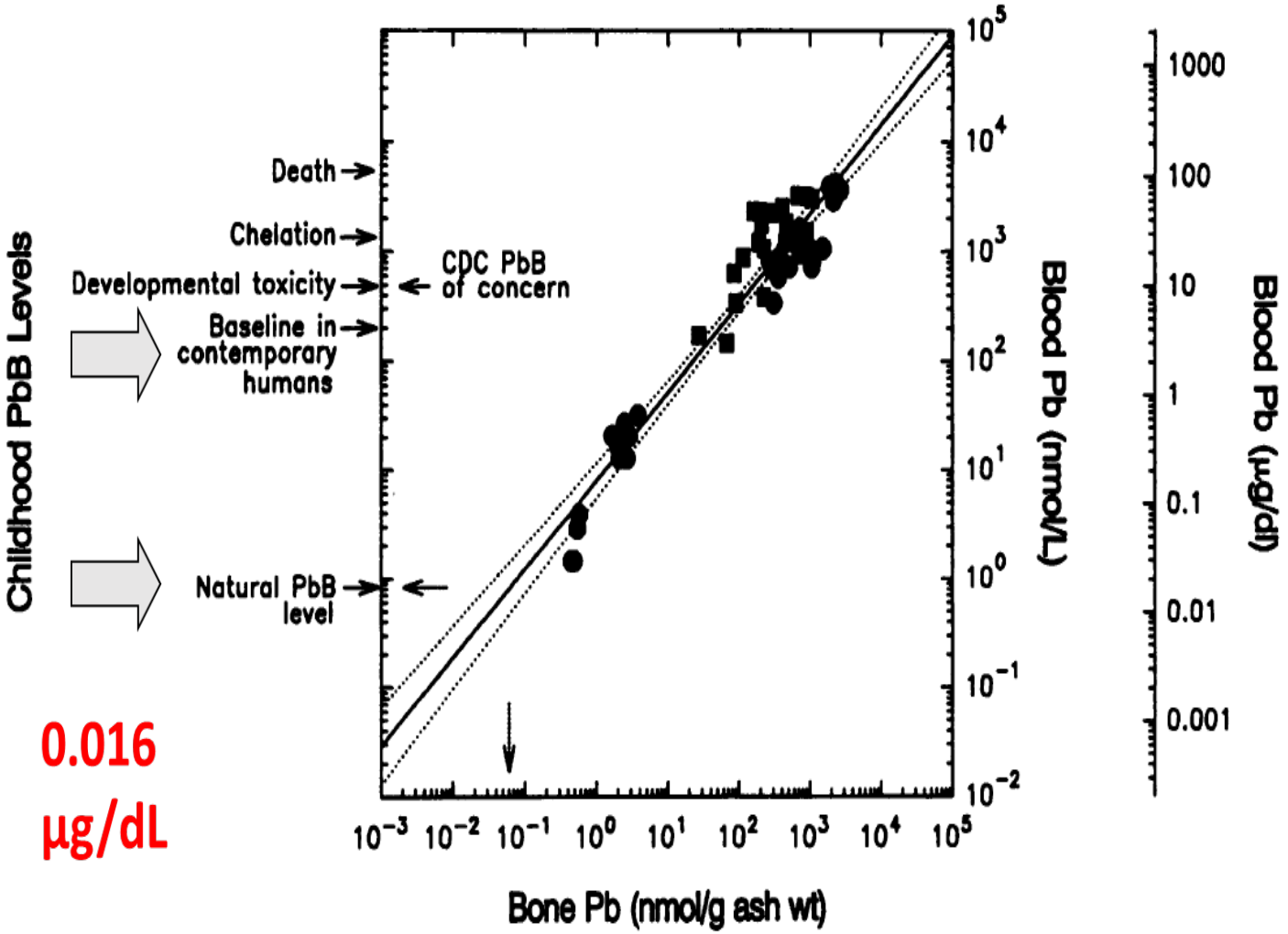

FLINT WATER PLANT
FLINT
WATER CRISIS
CNN / MGN

Off the Charts

The thousands of U.S. locales where lead poisoning is worse than in Flint

By M.B. Pell and Joshua Schneyer | **Filed** Dec. 19, 2016, 2 p.m. GMT

A Reuters examination of lead testing results across the country found almost 3,000 areas with poisoning rates far higher than in the tainted Michigan city. Yet many of these lead hotspots are receiving little attention or funding.



Source:
Smith, D. R., Flegal, A. R. (1992, November). The public health implications of humans' natural levels of lead. *American Journal of Public Health, 82*(11), 1565-1566.

Economic Net Present Value

- NPV compares the value of a dollar today to the value of that dollar in the future, taking inflation and returns into account.

- If the NPV of a prospective project is positive, it should be accepted. But if NPV is negative, the project may be rejected.

Office of Management and Budget & NPV

- The standard criterion for deciding whether a government program can be justified economically is the discounted monetized value of expected **net** benefits (or ROI).
- NPV assigns monetary values to benefits and costs, discounting future benefits and costs using an appropriate discount rate (3% or 7%), and subtracting the sum total of discounted costs from the sum total of discounted benefits.
- Programs with **positive** net present value increase social resources and are generally preferred. Programs with **negative** net present value should generally be avoided.

Limitations

- Intergenerational benefits not valued by discount rates
- Who pays and who benefits
- Costs are typically known but benefits often underestimated

Report Organization

The Methods

Qualitative Research

- 50 **interviews**
- 700 **research articles**
- 22 **case studies** (NCHH and TFAH)
- 5 national **listening sessions**
- 16 **Focus Groups**:

Quantitative

- Child Trends & Urban Institute, **Social Genome Model**
- Altarum Institute, **Value of Prevention Tool**

Project Oversight

- Subject matter experts
- Advisory committee
- Pew & RWJF

Funding

This report was funded by the Robert Wood Johnson Foundation with additional support from the Charles Stewart Mott Foundation

Sample ‘policy in action’

$44.5 million

Capital project led by Lansing Board of Water & Light

12,150 LSLs

Replaced over a ten year period

90%

Homes saw decrease in lead in water

Policy In Action

Policy in Action: Local Lead Paint Laws

In **Rochester, New York**, 87 percent of homes were built before 1950, and 60 percent of housing is tenant-occupied.* In December 2005, the City Council passed an ordinance requiring regular inspections of most pre-1978 rental housing for lead paint hazards as part of the city's certificate of occupancy process for rental properties.[1]

Housing inspections may be triggered by a new certificate of occupancy, renewal of an existing certificate, a neighborhood survey, a referral by an outside agency, or a complaint. Single-family and duplex rental units are inspected every six years with some exceptions, and buildings with three or more units as well as mixed-use properties are inspected every three years.

Rochester Lead Law

- Inspected more than 141,000 homes
- In 2004, 900 children had blood lead levels above the CDC's action level at the time (10 µg/dL) compared with 206 children in 2015.
- The number of children with blood lead over 10 µg/dL decreased roughly twice as fast in Monroe County as it did in New York state as a whole and nationwide

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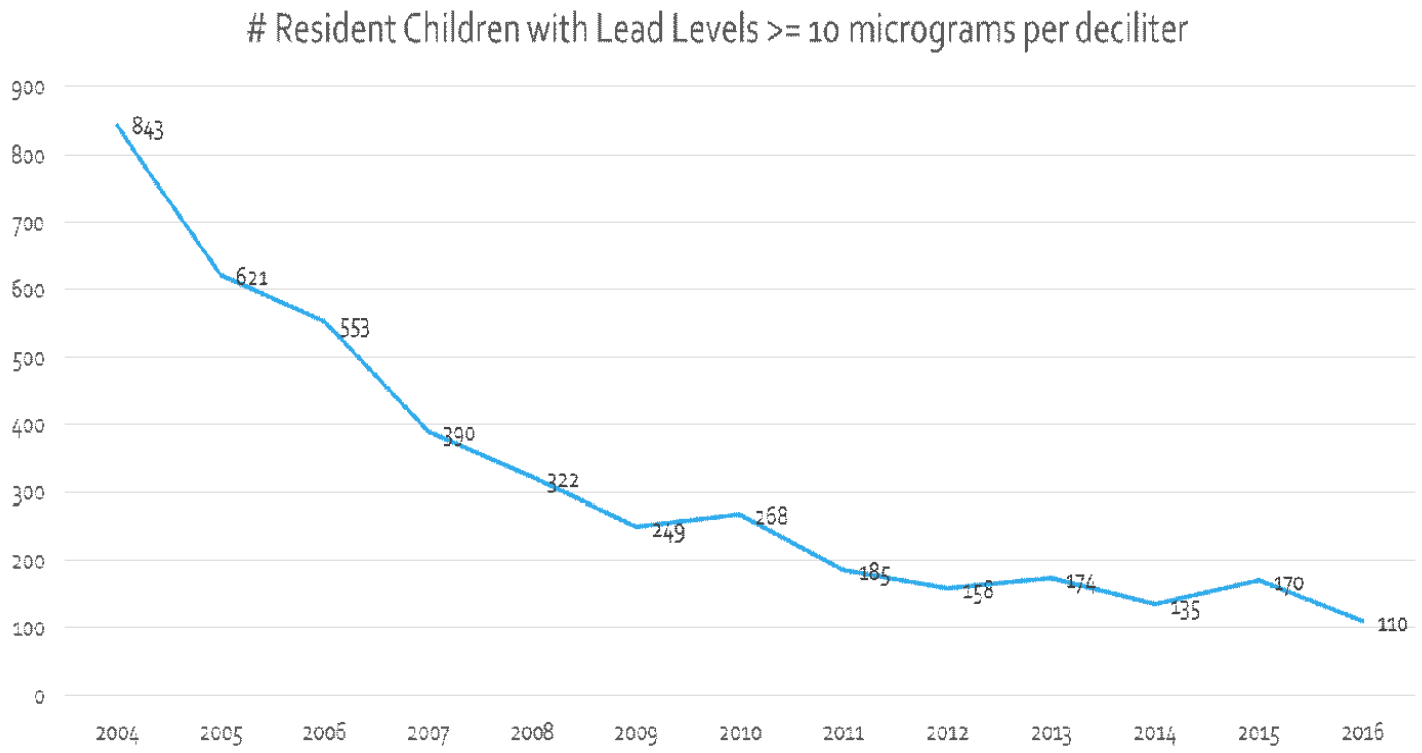
Rochester Results



Ohio Public Health Data Warehouse

Home | Help

Filter by category or click on name below.

Category All

Keywords

CATEGORY	NAME	LAST UPDATED
Birth Data	**Maternal and Child Health (MCH) Block Grant Reports** Partial MCH Block Grant reporting forms for the most recent reporting year. These reports are select health indicators of Ohio's mothers, women, children and youth.	07/25/2015
Birth Data	**Ohio Resident Live Births (2006-Present)** Ohio Resident Live Births (2006-present)	04/15/2018
Cancer Data	**Cancer Incidence Data (1996-2015)** Official end of year file	02/08/2018
Data Quality	**Ohio OneSource** Find licensed providers.	04/09/2018
Death Data	**Mortality** Ohio Resident Mortality Data (2007-Present)	04/18/2018
Mental Health	**OHYES! Ohio Healthy Youth Environments Survey Data** Student survey (7th -- 12th grade) of health risk behaviors assessing physical health, behavioral health, activity and wellbeing, safety, substance use, unintentional and intentional injuries, and environmental factors. This survey is a partnership between ODE, ODH, and OhioMHAS. Data are for schools that volunteered to participate and are not representative of the state as a whole.	01/09/2018
Population	**Population Data For Calculating Rates** Bridged-Race County Population data from National Center for Health Stastics (NCHS) to calculate rates at ODH.	06/26/2017
Prevention	**Lead Data** Blood Lead Test Results for Ohio Children	04/17/2018
Prevention	**Ohio Lead Hazardous Properties** Properties with Notices of Non-Compliance/Orders to Vacate for Lead Hazards	04/17/2018

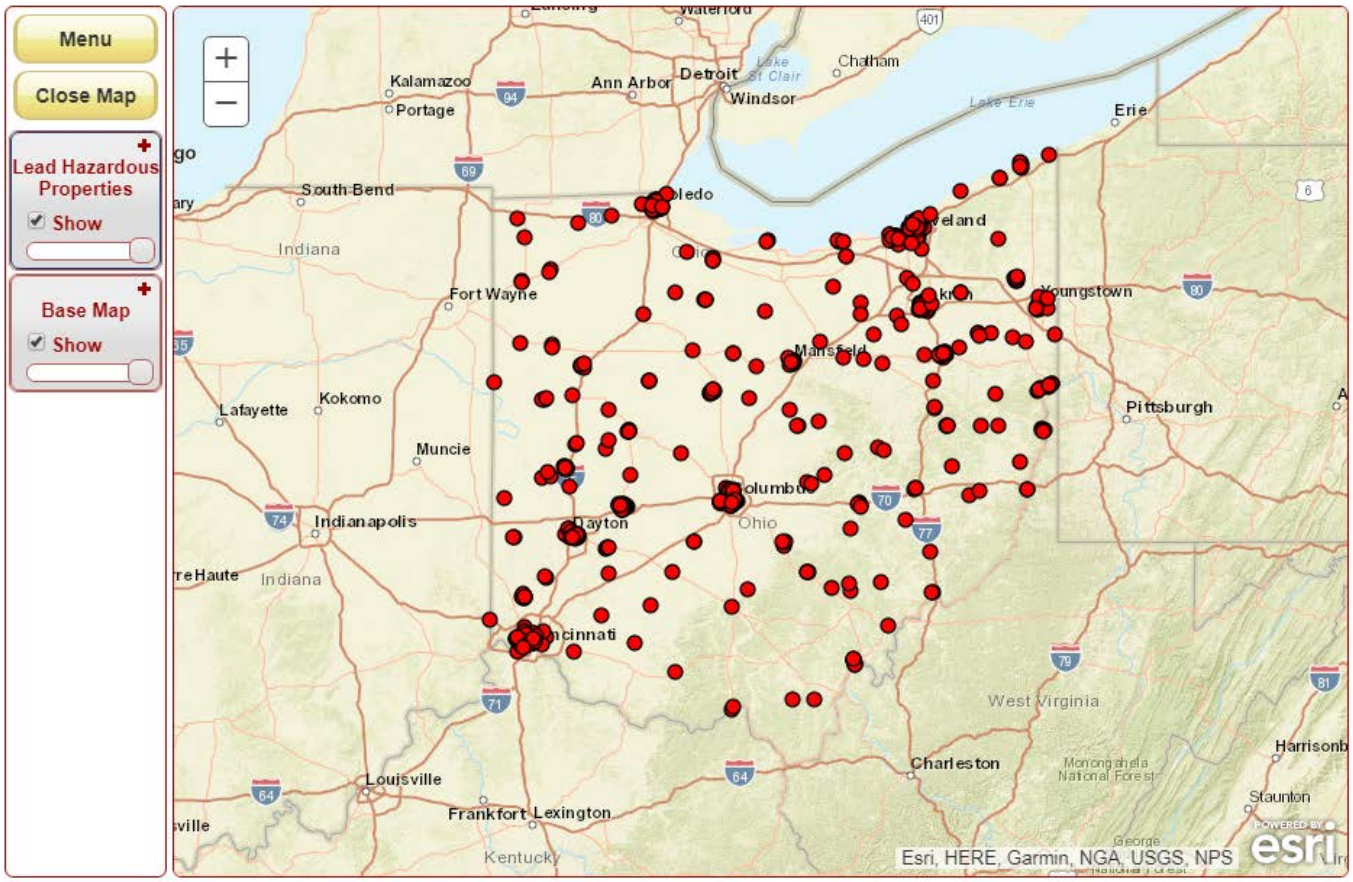
Ohio Public Health Data Warehouse

Home | Help

Ohio Lead Hazardous Properties

Category: Prevention
Latest Update: 4/17/2018
Description: Properties with Notices of Non-Compliance/Orders to Vacate for Lead Hazards
Contact Email: lead@odh.ohio.gov

Details | Data View | Map View



Focus groups

Locations:
Baltimore
Chicago
Flint
Indianapolis
Los Angeles
New Orleans
Philadelphia
Warren, AR

n = ~130

Race and ethnicity:
42% - Black
24% - White
16% - Hispanic

63% lived in single family homes
38% had no history of lead testing

Joshua Lott/Getty Images

Social Genome Simulation Model

- Data from the BLS Children of the National Longitudinal Survey of Youth (CNLSY) and NLSY 79
- For each child, changes in reading and math scores, and behavior estimated for each 1 µg/dL of prevented blood lead increase

Value of Prevention Tool

- **Developed to measure nonclinical interventions on lifetime outcomes:**
  - **Lifetime Earnings**
  - **Health Spending**
  - » **QALYs**
  - » **Education Spending**
- **Earnings and Education impacts modeled using IQ**
- **Health outcomes modeled through increased risk for Hypertension and Cardiovascular Disease (see Lanphear 2018)**

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VP Tool Modeling Steps

1. Define baseline cohort characteristics
2. Estimate two future hypothetical cohorts
   i. Cohort 1: Exposed at current lead levels
   ii. Cohort 2: Exposed to less lead as a result of policy interventions
3. Estimate intermediate outcomes for each cohort
4. Estimate the impact of these intermediate outcomes on lifetime outcomes
5. Measure benefits as the difference between Cohort 2 and Cohort 1

Comparison to Previous Cost-Benefit Analyses

- Includes more recent NHANES data on BLLs (2011-2014)
- Updated IQ/blood lead effect sizes
- Benefits and costs of specific national policy interventions
- Measures an intervention for a single future birth cohort (4 million children in 2018)

Lead Paint Hazard Control in Older Homes

Model Input Evidence

Target population: Children in homes built either before 1960 or before 1978; 76% of pre-60 houses and 52% of pre-78 houses have LBP

Changes in Blood lead (effect size)

- Children's BLLs are 40% lower following lead hazard control
  - Dust reduction - 12 yr HUD evaluation follow up
  - Corresponding reduction in BLL from Dixon et al. 2009 using NHANES dust/blood study

Costs

- 100% of homes get inspection ($1K) and 76% or 52% (depending on housing age) get hazard control ($9K)

Safe Renovation, Repair, and Painting

RRP Model Evidence

- EPA estimates that 1.27 million children aged 0-5 are exposed to LBP and an RRP event each year
- 211,167 of a single cohort would be exposed

- Exposure to an unregulated RRP event results in an increase of **1.08 ug/dL** compared to enforced RRP event from EPA Leggett Model

Costs

- Training, additional labor, supplies and clearance testing after the event
  - From Lead RRP Final Rule Economic Analysis: Increased cost per event of $302

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Residential Full Lead Service Line Replacement

Evidence for Lead Pipe Replacement

- 6.9% of children (Cornwell 2016 estimated 22 million people with lead service lines)

- Replacing LSL leads to a 0.407 ug/dL decrease
  - » Reduces water lead from 11.6 ug/L to 2 ug/L (Deshommes and Provost).
  - » 1 ppb change in water lead leads to a 0.04 ug/dL change in BLL, from IEUBK

- $6,000 to replace LSL (average)

Removal of Lead in Aviation Gas

Avgas Evidence

1,378,237 children, or, 5.69% of all children, from EPA's estimate of 16 million people who live within 1 km of an airport using leaded avgas

- BLLs of children who live within 1km of airport are 3.8% higher than children who live farther away (Miranda et al. 2011)

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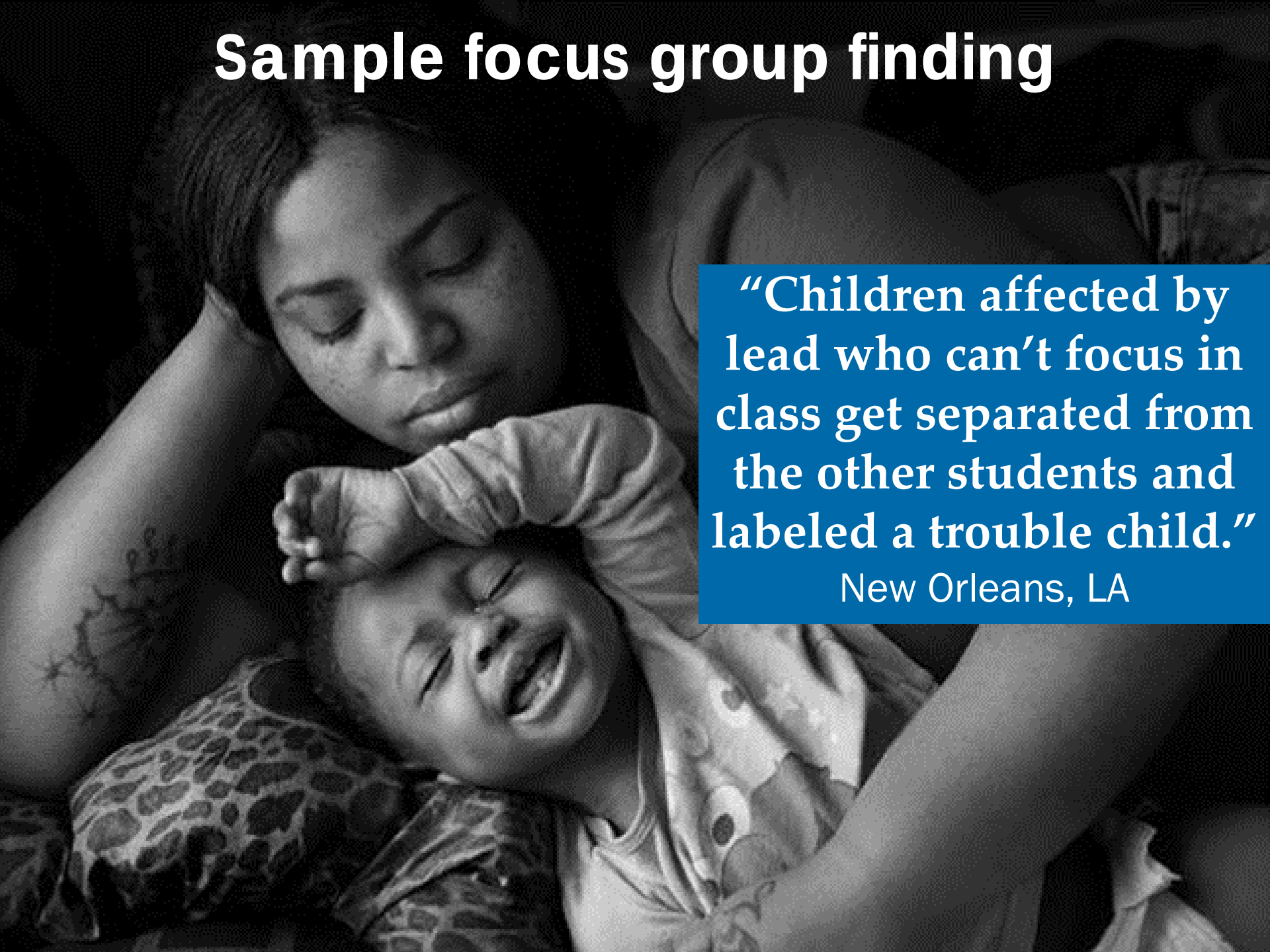
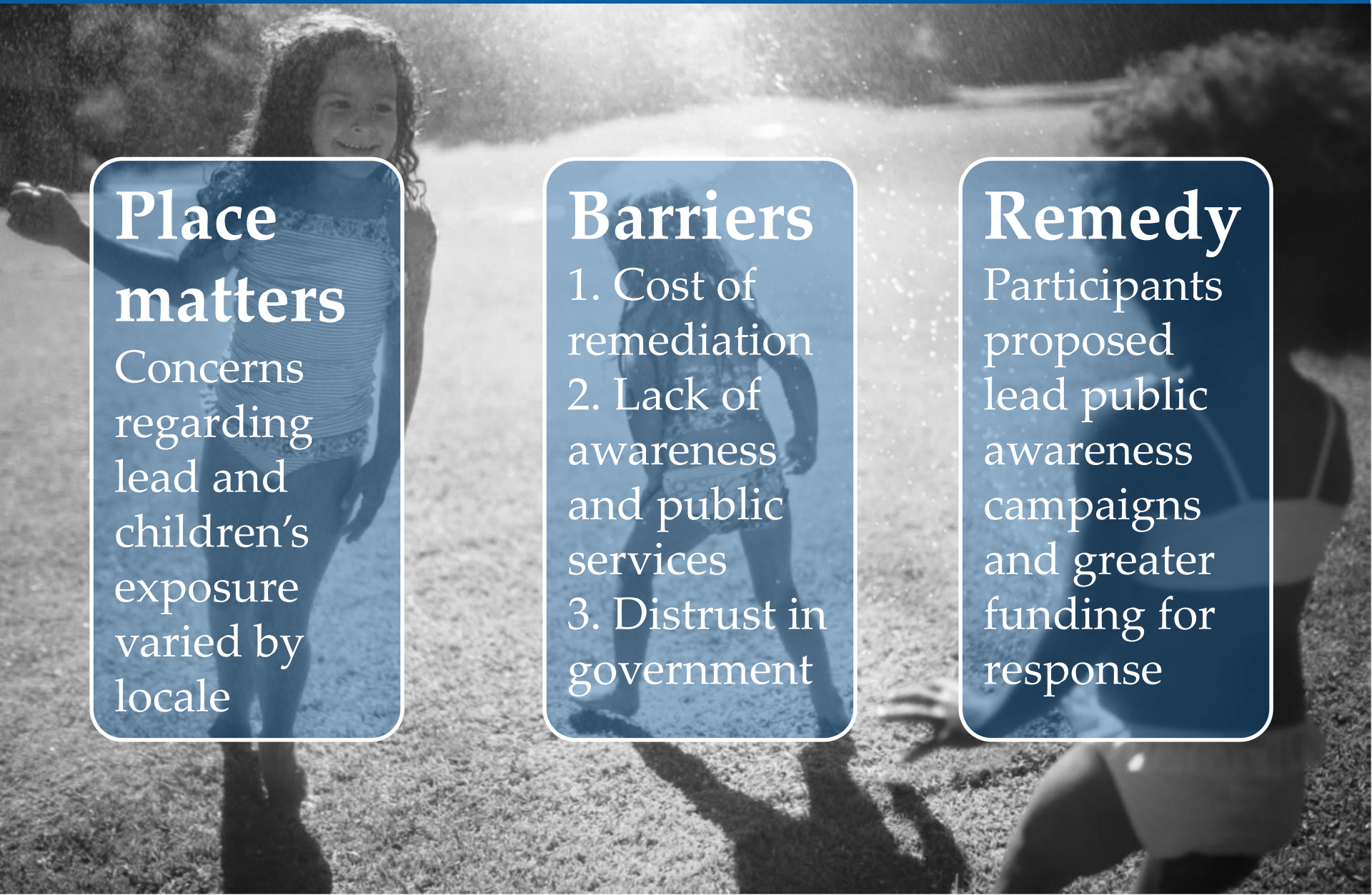
Sample focus group finding



"Children affected by lead who can't focus in class get separated from the other students and labeled a trouble child."

New Orleans, LA

Focus group findings



Place matters

Concerns regarding lead and children's exposure varied by locale

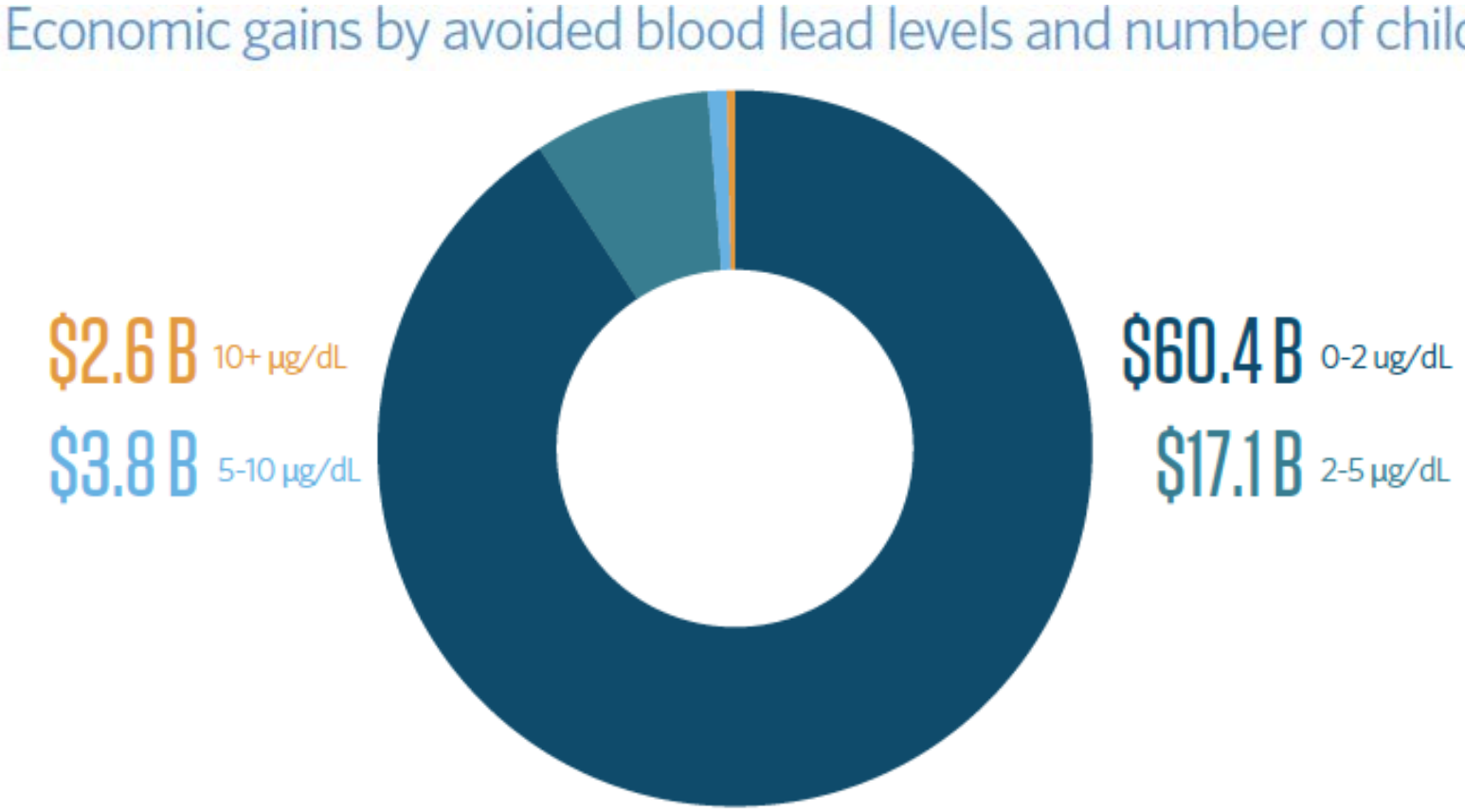
Barriers

1. Cost of remediation
2. Lack of awareness and public services
3. Distrust in government

Remedy

Participants proposed lead public awareness campaigns and greater funding for response

Key Findings & Recommendations



- **Hypothetical "all blood lead levels at zero"**
  - Most gains are for children with blood lead levels under 2 ug/dL
  - Benefits are mainly derived from increased earnings, resulting from higher IQs
- **Modeled four primary prevention policies**
  - Lead-paint hazard control, lead service line replacement, enforcement of EPA's renovation rule, and removal of lead from aircraft fuel

IQ & Blood Lead

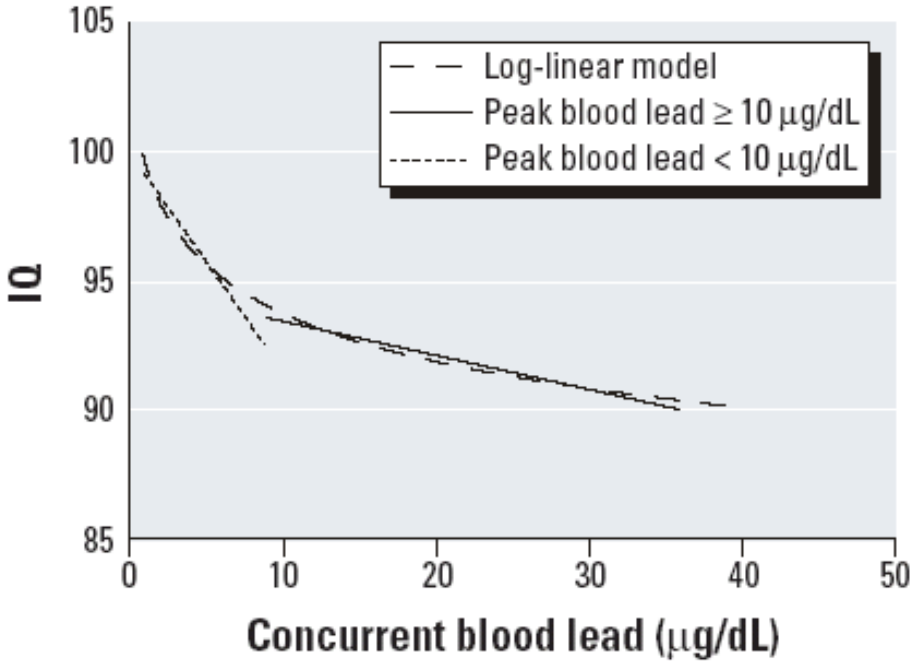


Figure 4. Log-linear model for concurrent blood lead concentration along with linear models for concurrent blood lead levels among children with peak blood lead levels above and below 10 µg/dL.

FINDING:

Eradicating lead paint hazards from **ALL pre-1978** homes of children would provide $12.1 billion in future benefits, or approximately $1.17 per dollar invested, and protect more than 1.9 million children born in 2018 ALONE.

RECOMMENDATION:

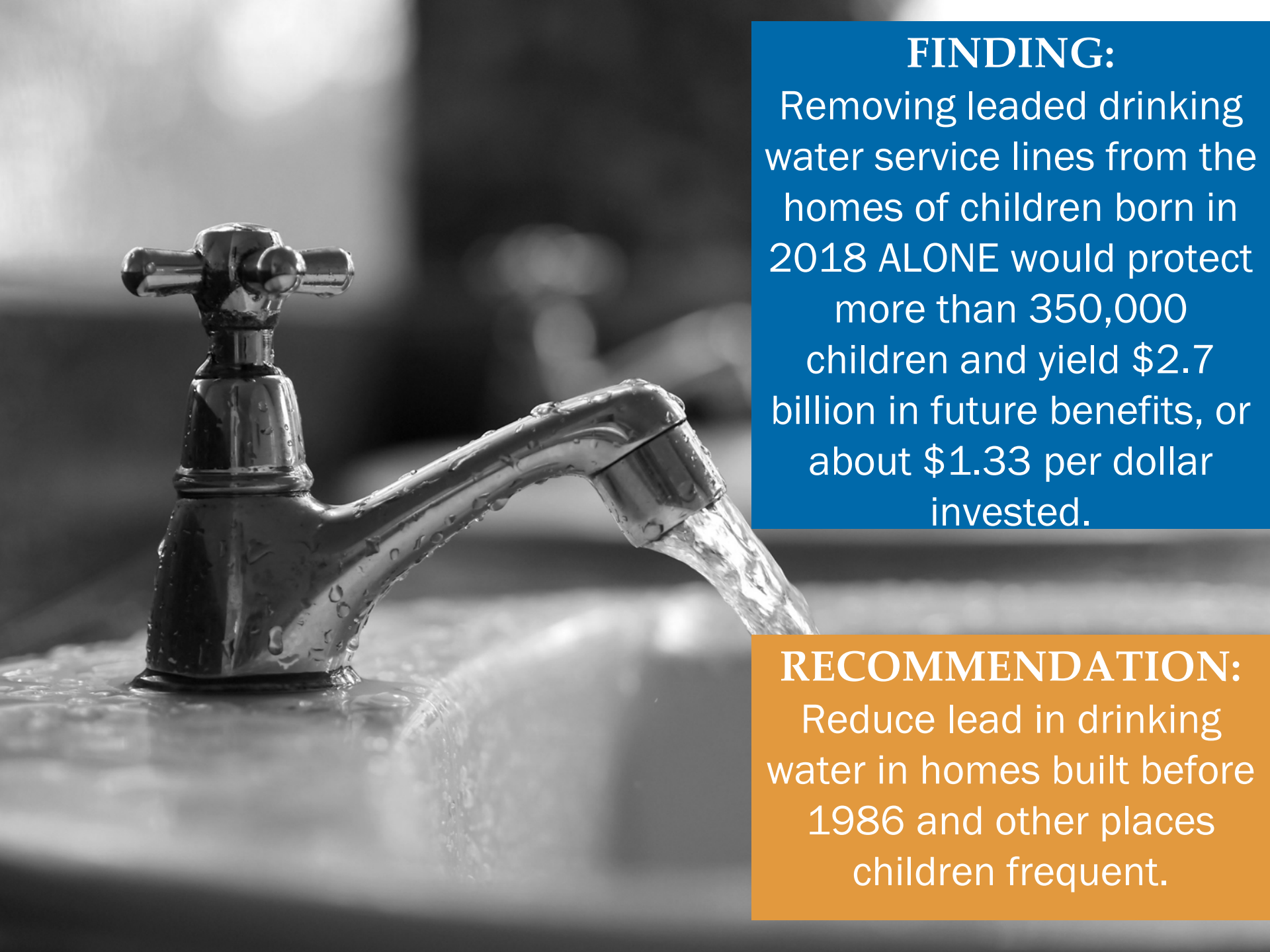
Remove lead paint hazards from housing before children are harmed.

FINDING:

Eradicating lead paint hazards from **pre-1960** older homes of children from **low-income families** would provide $3.5 billion in future benefits, or approximately $1.39 per dollar invested, and protect more than 311,000 children born in 2018 ALONE.

RECOMMENDATION:

Remove lead paint hazards from low-income housing built before 1960 and other places children spend time.



FINDING:

Removing leaded drinking water service lines from the homes of children born in 2018 ALONE would protect more than 350,000 children and yield $2.7 billion in future benefits, or about $1.33 per dollar invested.

RECOMMENDATION:

Reduce lead in drinking water in homes built before 1986 and other places children frequent.

FINDING:

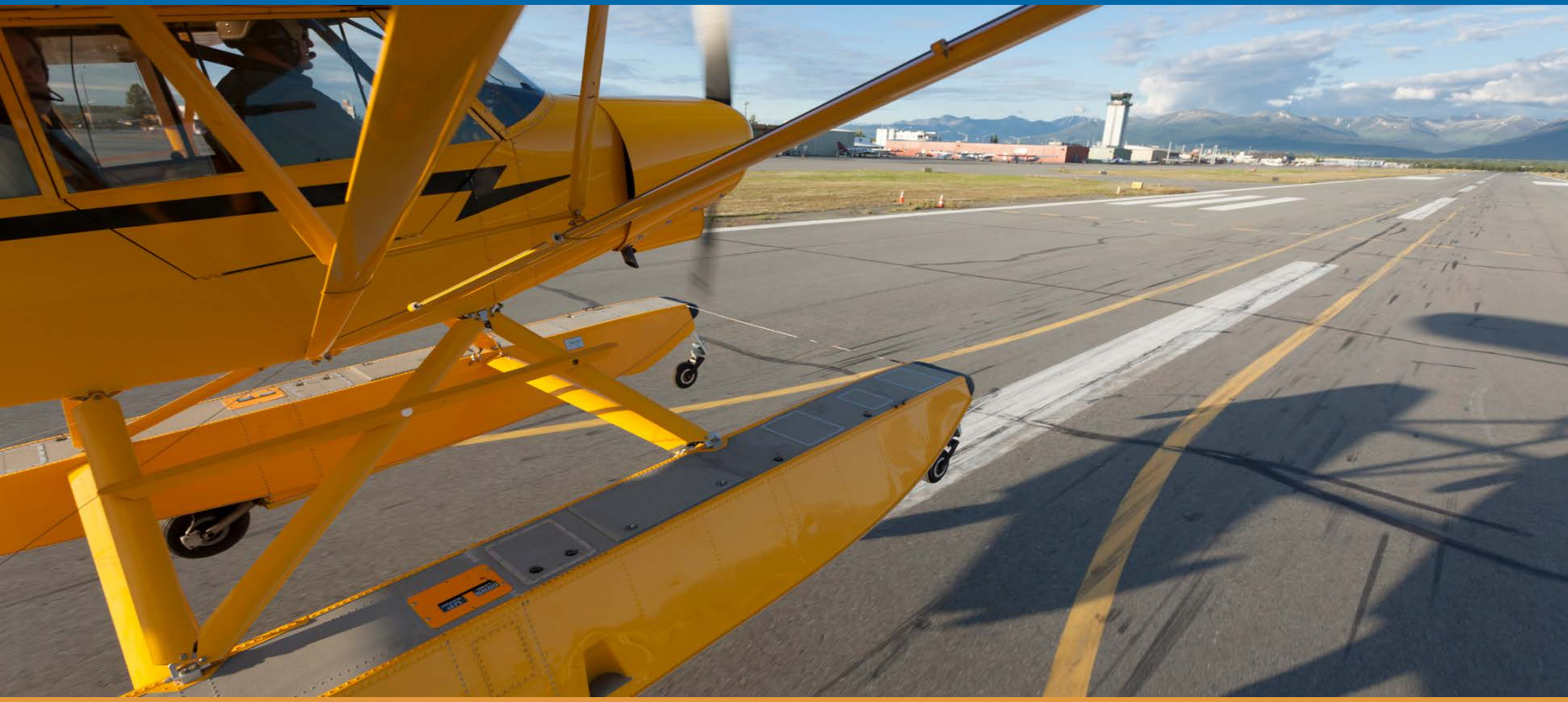
Ensuring that contractors comply with the Environmental Protection Agency's rule that requires lead-safe renovation, repair, and painting practices would protect about 211,000 children born in 2018 and provide future benefits of $4.5 billion, or about $3.10 per dollar spent.

RECOMMENDATION:

Increase enforcement of the federal renovation, repair, and painting rule.

FINDING:

Eliminating lead from airplane fuel would protect more than 226,000 children born in 2018 who live near airports, generate $262 million in future benefits, and remove roughly 450 tons of lead from the environment every year.



RECOMMENDATION:

Reduce air lead emissions.

Examples: General Recommendation & Specific Tactics

- Replace lead contaminated windows
- Inspect homes – Disclosure
- Financing remediation – Tax credits, grants, mortgages
- Medicaid CHIP waivers/amendments
- Updated standards
- Codes & Renovation Repair and Painting Rule Enforcement

Benefits Likely Underestimated

- Intangible Benefits (e.g. stress on parents and children, avoided lead paint litigation, special property maintenance, premature mortality from lead exposure in childhood, premature memory loss, treatment of dental caries associated with lead exposure, liver, kidney and other diseases associated with lead exposure, lead-associated criminal behavior costs beyond juvenile delinquency)
- Discount Rate – Do We Invest in Children?
- Children born in 2018 & some who move into remediated homes during 10 years (12 years)

FINDING:

Providing targeted evidence-based academic and behavioral interventions to the roughly 1.8 million children with a history of lead exposure could increase their lifetime family incomes and likelihood of graduating from high school and college and decrease their potential for teen parenthood and criminal conviction.

RECOMMENDATION:

Ensure access to developmental and neuropsychological assessments and appropriate high-quality programs for children with elevated blood lead levels.

Other Recommendations

- Reduce lead in food and consumer products
- Clean up contaminated soil
- Improve blood lead testing among children at high risk of exposure and find and remediate the sources of their exposure.
- Improve public access to local data.
- Fill gaps in research to better target state and local prevention and response efforts

Hierarchy of Lead Paint Assessments

1. Proactive Lead Inspections/Risk Assessments – Public Housing, Project-based Section 8, Rehab Over $25,000, Multifamily Mortgage Insurance, HUD lead grantees

2. Proactive Paint Visual Assessments plus dust testing – Rochester, Toledo, others

3. Reactive Lead Risk Assessments – Poisoned Children

4. Paint Visual Assessments, plus clearance only if paint deteriorated – Tenant-Based Section 8

5. Paint Testing/presumption – Some rehab

6. No Paint Testing but Cleaning Verification – EPA Renovation Repair and Painting Rule

7. No Deteriorated Paint, No Dust Testing - Federally Insured Single Family Mortgage Insurance, Fannie & Freddie

8. No testing only disclosure of “known” lead hazards – Most pre-1978 housing remains uninspected so nothing to disclose

Hierarchy of Lead Paint Interventions

1. Abatement of Lead Hazards at Time of Modernization – Public Housing
2. Abatement at Time of Child Occupancy – Mass
3. Abatement at Time of Federally Funded Rehab > $25,000 or Project-Based Section 8 or Multi-Family Mortgage Insurance
4. Abatement/Interim Controls – HUD Lead Grantees, Federally Funded Rehab <$25,000
5. Reactive Interim Controls and Clearance – EBL Children and Tenant-Based Section 8
6. Paint repair without clearance – FHA Single Family, Fannie, Freddie
7. No paint repair, no clearance – Most private housing

Potential future efforts

- **Practice**
  - Translating to other places successful programs
- **Financing**
  - Children's Health Insurance Program Amendments, Social Impact Bonds, Pay for Success, mortgage financing, redevelopment, health systems
- **Research**
  - Document the sources and locations warranting action
- **Policy**
  - National campaign
  - States and localities
  - Public health impact, ripeness

Read the report at www.pewtrusts.org/lead

A Few Recent Actions on Lead Poisoning Prevention

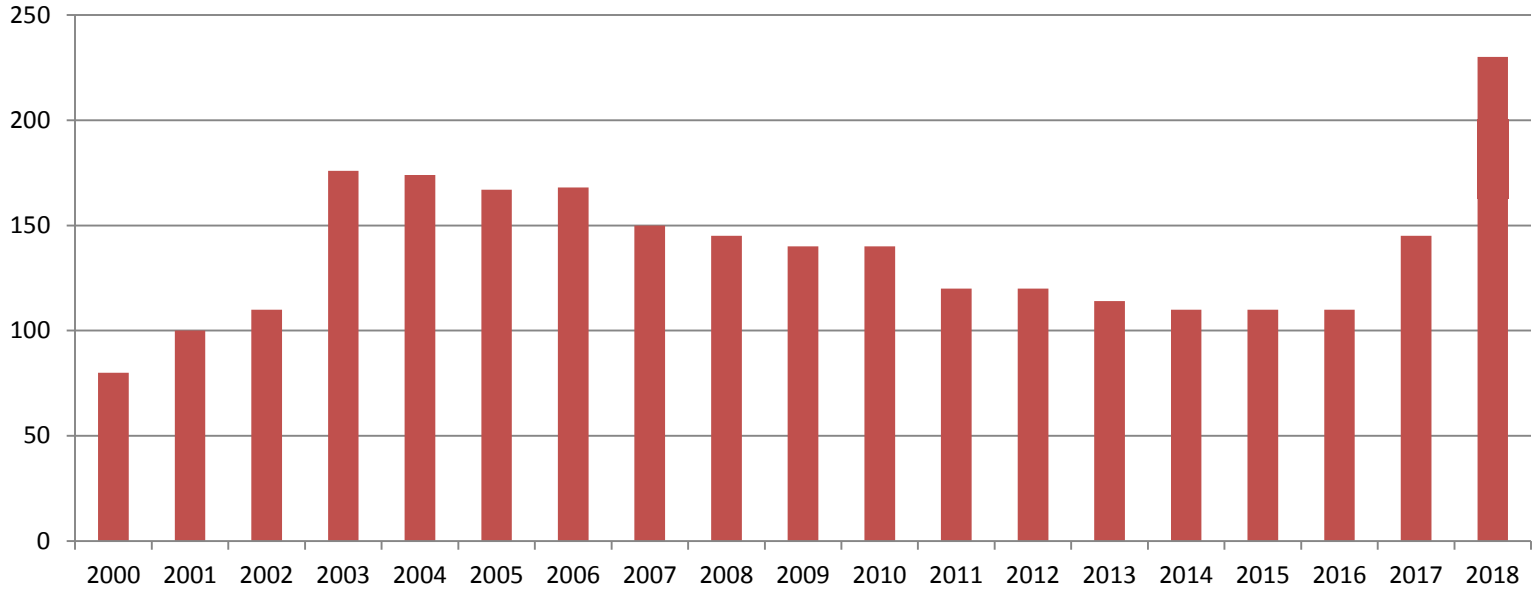
- 2012 – Declaration of the Lead and Environmental Hazards Association and the National Association of Lead and Healthy Homes Grantees
- 2016 – Declaration on Flint from LEHA, Grantees and the National Safe and Healthy Housing Coalition
- 2016 – Launch of Find It Fix It Fund It Campaign
- 2016 – Lead Strategies Released
- 2016 – National Lead Summit
- 2017 – American Academy of Pediatrics Statement
- 2017 – Testimony to EPA and HUD on Lead Regulations
- 2017 – Letters to Congress on Appropriations
- 2017 – 10 Policies to Respond to Childhood Lead Poisoning – Pew Report
- 2018 – Some good news for once

HUD Appropriations

National Safe and Healthy Housing Coalition

HUD OLHCHH Programs:	Appropriation								House	Senate	NSHH Coalition
	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 18	FY 18 Request
Lead Hazard Control and Demonstration Programs	$114.6	$94.11	$107.5	$101	$91	$93	$88	$110	$100	$125	$189
Healthy Homes Programs	$20	$23.253	$10	$10	$15	$15	$20	$30	$25	$30	$35
Technical Studies	$4	$1.199	$2.5	$3	$4	$2	$2	$5	$5	$5	$6
Total	***$140***	***$119.76***	***$120***	***$114***	***$110***	***$110***	***$110***	***$145***	***$130***	***$160***	***$230***

HUD Lead & Healthy Homes Appropriations ($Millions)



National Safe and Healthy Housing Coalition

HUD Lead & Healthy Homes

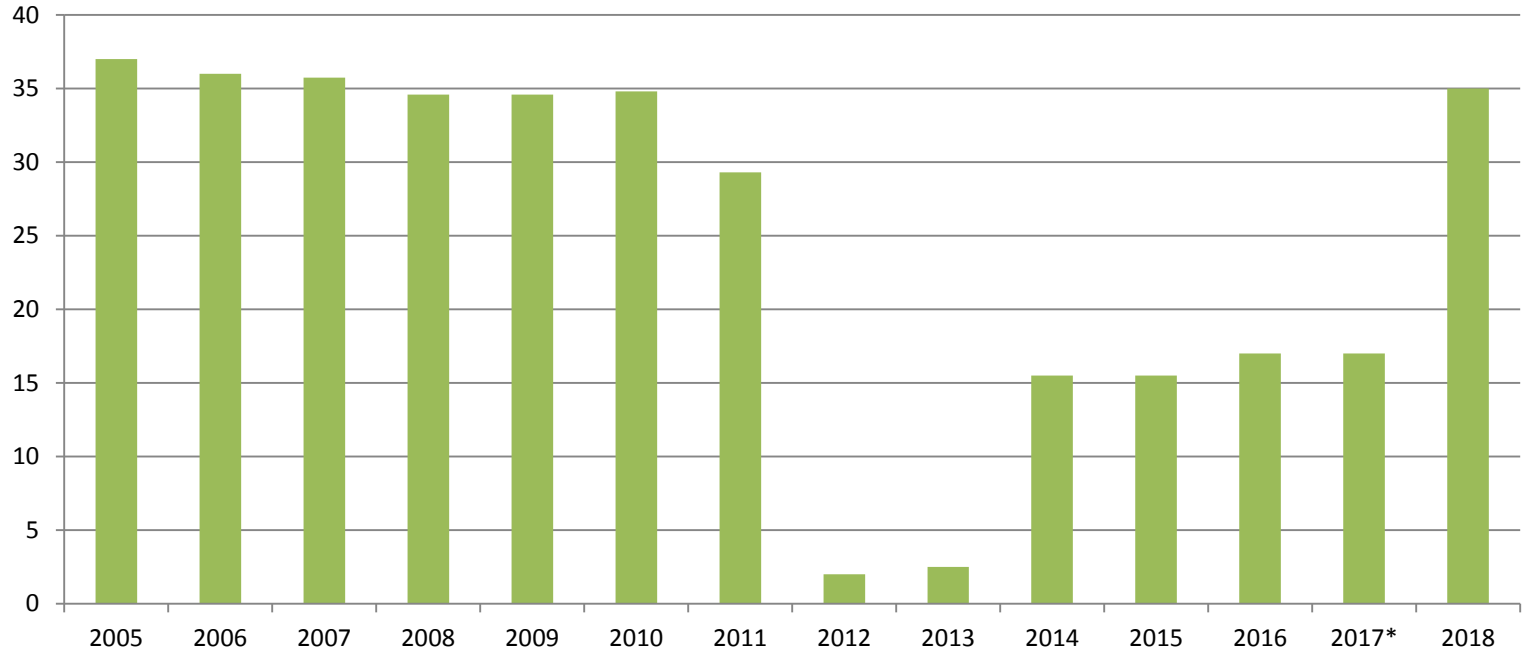
- Lead Hazard Control Grants to Local Jurisdictions - $185M
- HUD Healthy Homes Program - $ 45M
- Tech Studies - ?

What It Means:

Much better chances of winning a grant & helping parents & owners

National Center for HEALTHY HOUSING

CDC Lead & Healthy Homes Appropriations ($Millions)



National Safe and Healthy Housing Coalition

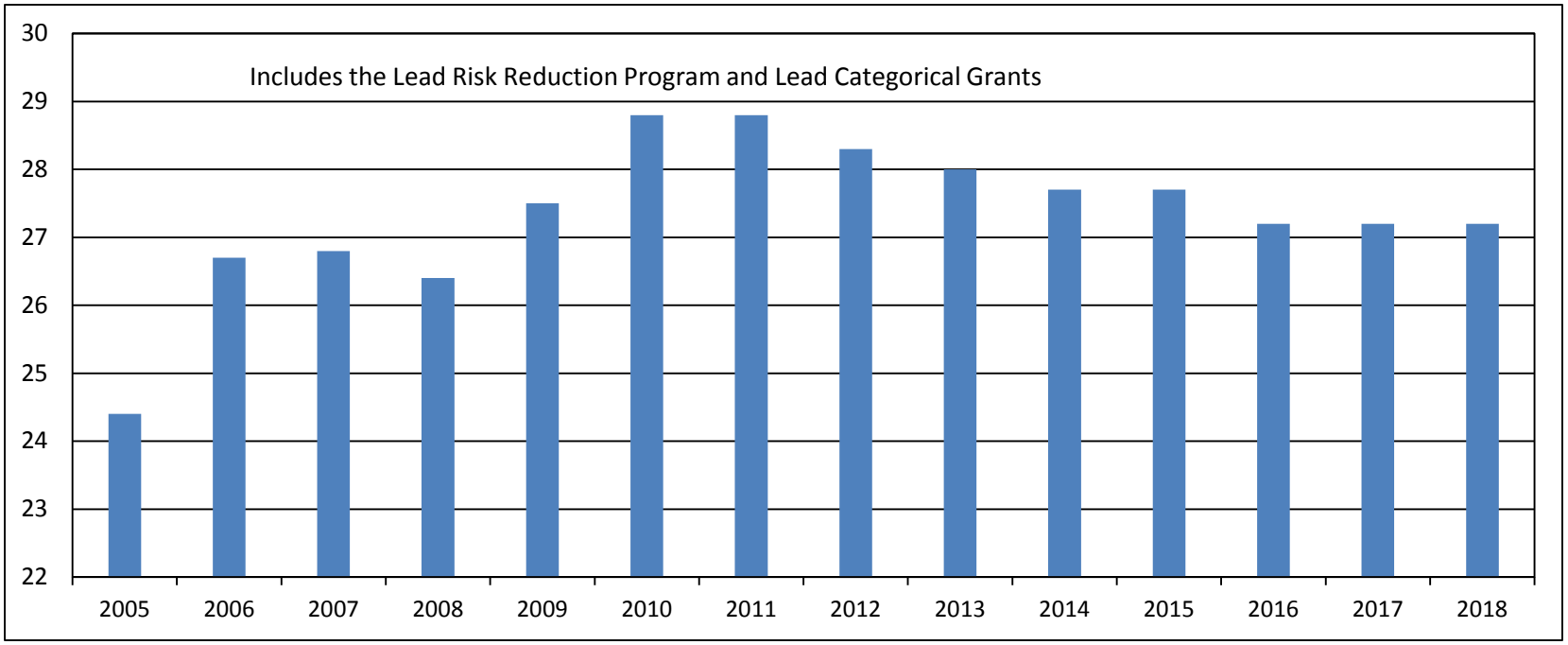
CDC Lead & Healthy Homes

- Increased Grants to States & a few Big Cities - $35M

What It Means:

- Improved Surveillance
- More States Report Blood Lead Data
- Improved Coordination of Case Management
- Restoration of the CDC Lead Poisoning Prevention Advisory Committee

EPA Lead Poisoning Appropriations ($ Millions)



National Safe and Healthy Housing Coalition

Other Good News

- Level Funding for CDC Asthma and Env Health Tracking & EPA Lead Programs
- Increases in HUD Community Development Block Grants (+$300M) and HOME (+$412M)
- Increase in Low-Income Housing Energy Assistance Program (+$250M)
- Increase in WAP (+$23M)

http://nchh.org/2018/03/fy18-omnibus/

National Center for HEALTHY HOUSING

The Honorable Susan Collins
Chair
Subcommittee on Transportation, Housing and Urban Development and Related Agencies
Committee on Appropriations
U.S. Senate
Washington, DC 20510

The Honorable Jack Reed
Ranking Member
Subcommittee on Transportation, Housing and Urban Development and Related Agencies
Committee on Appropriations
U.S. Senate
Washington, DC 20510

April 18, 2018

Dear Chair Collins and Ranking Member Reed:

On behalf of the National Safe and Healthy Housing Coalition, we would like to express our appreciation and thanks for the wonderful support for lead poisoning prevention and healthy homes in the Fiscal Year 2018 omnibus bill passed last month. In particular, we applaud the increase from $145 million to $230 million for the Office of Lead Hazard Control and Healthy Homes at the Department of Housing and Urban Development (HUD).

FY 19 Appropriations?

Now is the Time to act

National Center for HEALTHY HOUSING

FY 2019

As you consider the Fiscal Year 2019 funding bill, we urge you to continue to support the vital work of this office and further increase funding to a total of $356 million, including $250 million for HUD's Lead Paint program, $100 million for the Healthy Homes Program and $6 million for the Lead Technical Studies Program. This increase would allow the office to surpass the $230

National Center for
HEALTHY HOUSING

Infrastructure and Mortgages: What about the Kids?

by David Jacobs and Anita Weinberg

National Safe and Healthy Housing Coalition

SENATE DEMOCRATS' JOBS & INFRASTRUCTURE PLAN FOR AMERICA'S WORKERS

Returning the Republican Tax Giveaways for the Wealthy to the American People

$62 billion for Neighborhood Revitalization, Lead Remediation, and Affordable Housing

f. Make cost-effective investments to protect the health and future of our children by addressing lead-based paint hazards in America's housing stock. Exposure to lead can

National Safe and Healthy Housing Coalition

The National Safe and Healthy Housing Coalition is a broad, voluntary coalition of over 300 organizations working to improve housing conditions nationwide through education and outreach to key national stakeholders and federal public decision-makers. The Coalition promotes policies for safe and healthy housing in the United States, with special emphasis on those who are disproportionately impacted.

Coalition Facts and Activities

July 2009
founded

570
individual members

300
organizational members

44
43 states and DC represented

Organizational Makeup.
80% of membership operates with a state and/or local focus

Steering Committee.
Comprised of 16 elected members; governs coalition activities

Policy.
Support national policy agendas and funding requests

Quarterly Webinars.
Learn from colleagues and experts

Monthly Action Alerts.
Receive updates about events, sign-on letters, and new resources

Regular Hill Meetings.
Visit with your members of Congress (Coalition members have met with Congressional offices over 175 times since 2013 alone!)

learn more

To join this unified national movement or simply learn more about the Coalition, related legislative news and priorities, coming events and activities, and more ...

visit: **www.nshhcoalition.org** contact: **sarah@nshhcoalition.org**

Making a Difference

"Making a difference" or "having a social impact" can be measured by:

- The number of people whose lives you improve, and how much you improve them.
- Includes happiness, health and a lack of suffering.
- Solving problems faster than they would have been solved otherwise.

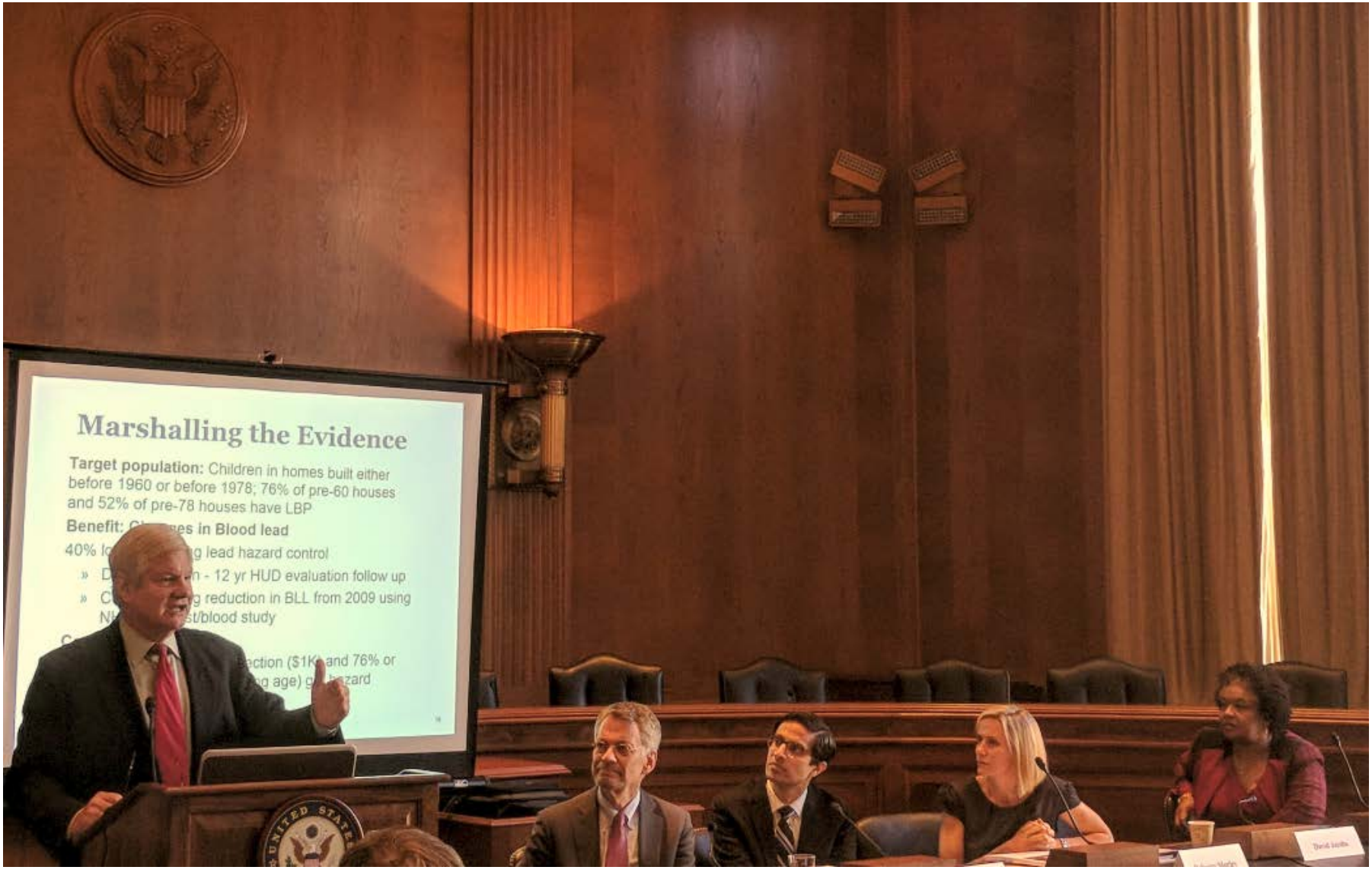
National Center for HEALTHY HOUSING


Think
Like A
STAY

25 YEARS OF BETTER HOUSING, BETTER HEALTH

An interactive history of NCHH's fight to secure healthy housing for all.

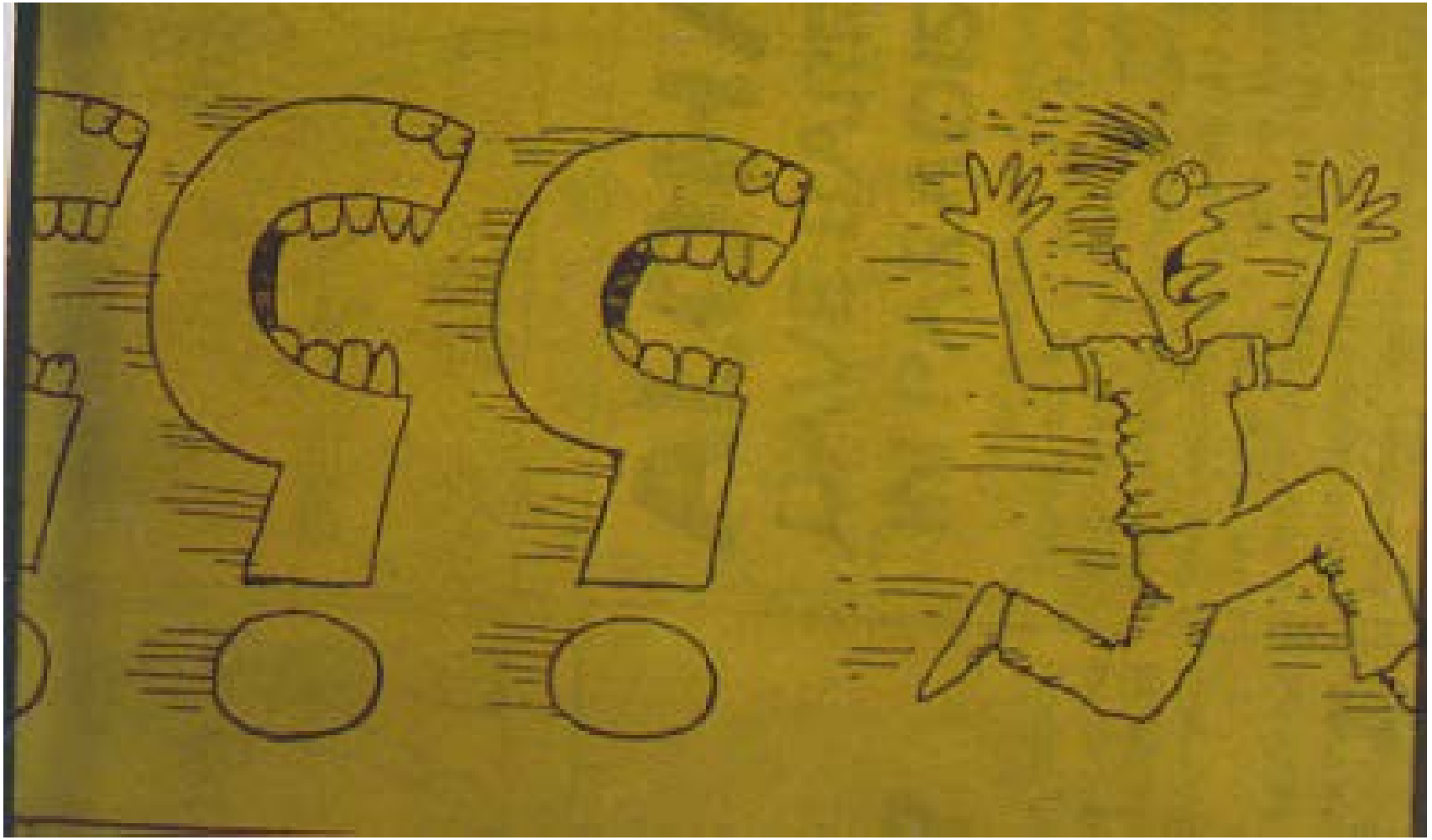
“Knowing is not enough;
we must apply.
Willing is not enough;
we must do.”
—Goethe


Marshalling the Evidence
Target population: Children in homes built either before 1960 or before 1978; 76% of pre-60 houses and 52% of pre-78 houses have LBP
Benefit:
in Blood lead
lead hazard control
- 12 yr HUD evaluation follow up
reduction in BLL from 2009 using
st/blood study
ction ($1K and 76% or
age)
azard

We Want You

for the **Conversation**

http://www.nchh.org/Policy/National-Safe-and-Healthy-Housing-Coalition.aspx



Evaluation Survey

- Evaluation survey will launch automatically after the webinar … **only 5 questions**
- All attendees will also receive a link to the survey in the follow-up email that will come from GoToWebinar tomorrow
- NCHH will include a link in our personal follow-up email

National Center for HEALTHY HOUSING

THANK YOU!

www.nchh.org ♦ @NCHH ♦ facebook.com/HealthyHousing

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