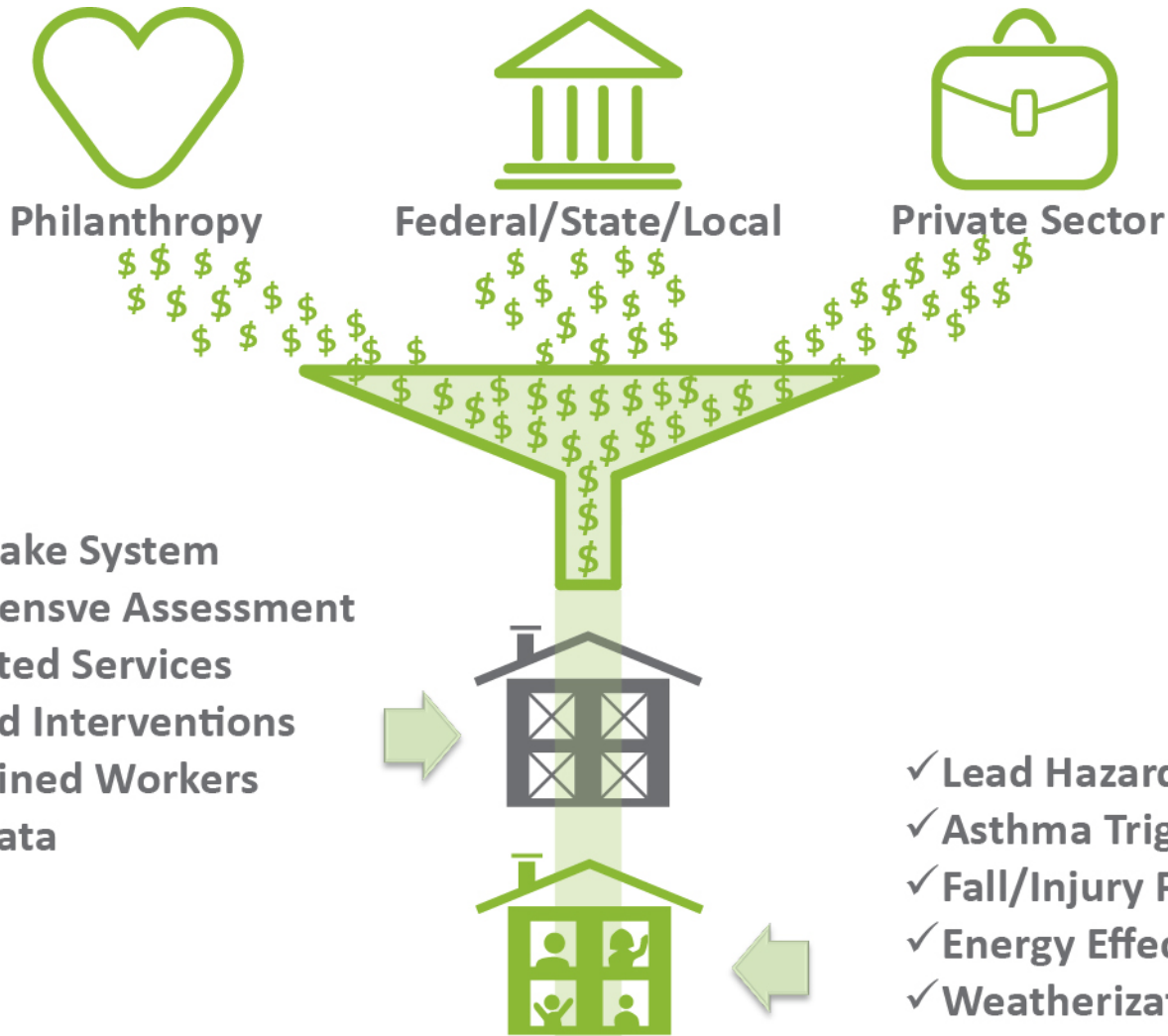


Taking Hospital Community Benefit Policy to the Next Level: *Advancing Community Health*



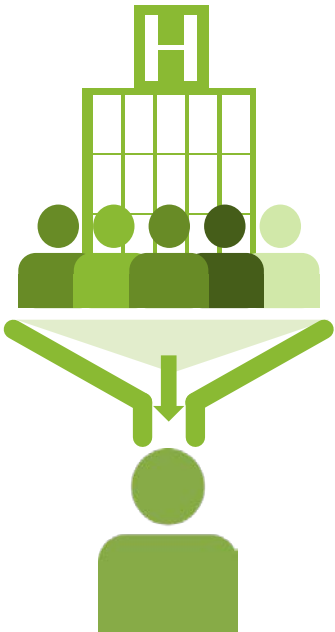
Housing is a platform for health



GHHI's comprehensive model addresses health, safety, and energy efficiency needs in homes.

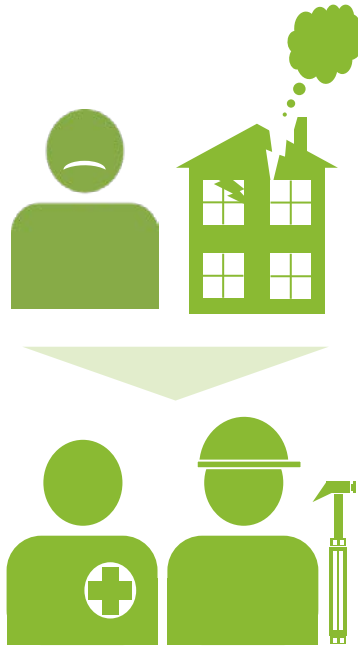
1 Intake

Receive referral



2 1st home visit

Perform assessment and education



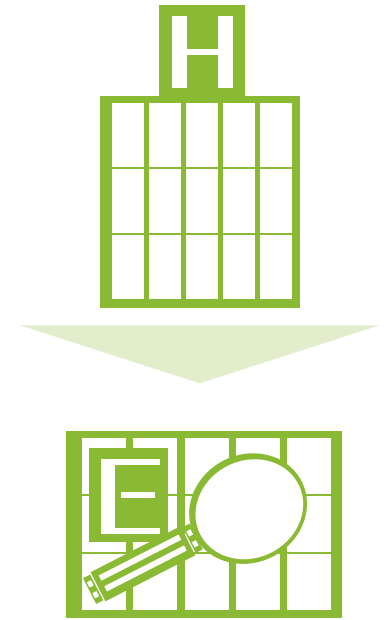
3 Services

Provide home remediation and education services



4 Evaluation

Evaluate outcomes

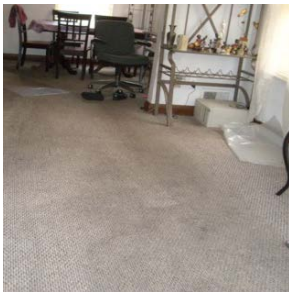


One Family's Story

Dewayne Davis, age 8, suffered from asthma caused by his unhealthy, energy-inefficient home which was full of asthma triggers.



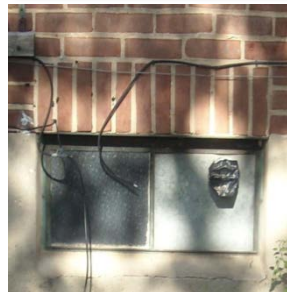
**Old carpets =
allergens**



**Water leaks =
mold hazards**



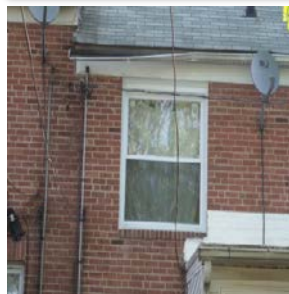
**Deteriorated
windows = air leaks**



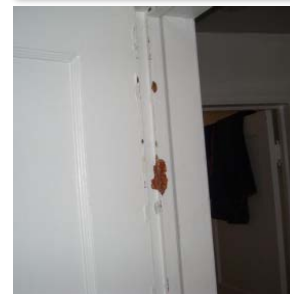
**Broken hot water
heater and furnace**



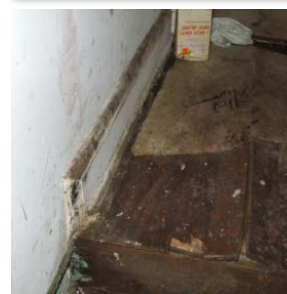
**Defective gutters =
water leaks**



**Chipping paint =
lead hazard**



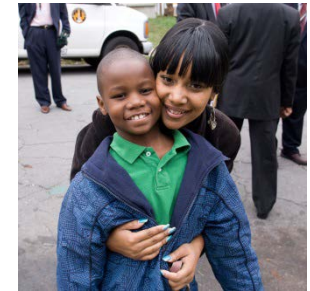
**Broken tile =
safety hazard**



**Broken ducts =
higher heating bills**



A Solution Through Braiding



An integrated approach cost 25% less to implement (\$12,057 vs \$16,096), has kept DeWayne out of the hospital for asthma-related visits, improved his school attendance and reduced the family's monthly heating bills—and helped his mother achieve as well.

<p>Remove old carpets</p>  <p>HUD (HHDP)</p>	<p>Remediate mold, install dehumidifier</p>  <p>HUD (HHDP)</p>	<p>Install Energy Star windows</p>  <p>HUD (HHDP)</p>	<p>Install furnace and hot water heater</p>  <p>Philanthropy</p>
<p>Replace broken gutters</p>  <p>HUD (HHDP)</p>	<p>Stabilize chipping paint</p>  <p>HUD (HHDP)</p>	<p>Resurface uneven floors</p>  <p>HUD (HHDP)</p>	<p>Seal ducts, blow insulation</p>  <p>DOE (WAP)</p>

Effects of Lead Poisoning on Children

- Learning disabilities
- Attention Deficit Disorder (ADD)
- Hyperactivity
- Decreased intelligence (loss of IQ points)
- Speech and language delays
- Increased violent, aggressive behavior, and juvenile delinquency
- 7 times more likely to drop out of school
- 6 times more likely to be in the criminal justice system

Asthma

- 25 million Americans with asthma, including over 6.8 million children
- \$50.1 billion in asthma-related medical costs per year
- 3,500 asthma-related deaths annually
- Asthma accounts for over 15 million doctor visits and nearly 2 million ER visits each year
- 14.4 million missed school days from asthma
- 14.2 million missed work days from asthma

Household Injury

- Home injuries cause more than 10 million ER visits per year
- 18,000 unintentional home injury deaths occur each year, and household injury is the leading cause of death among children
- 13 million preventable home-related injuries occur annually, costing \$222 billion in medical costs

The Business Case for Lead Poisoning Prevention

- 535,000 children estimated with EBL > 5 mg/dL
- Monetized Benefits of Prevention = 2.2 to 4.7 IQ point increase results in increased lifetime worker productivity @ \$954,000 per child = \$110 to \$319 billion

(discounted 2000 dollars for each year's group of 3.8 million two-year old children) Source: CDC

- For every \$1 spent on lead hazard control programs there is a \$17-\$221 return on investment

Source: HUD, Gould

The Business Case - Asthma

- Return on investment: HHS's economic review of published studies showed a return of \$5.3 to \$14 for each \$1 invested in environmental asthma interventions.
- MN Dept of Health - Reducing Environmental Triggers of Asthma program produces cost savings of \$1,960 per patient over 1-yr period.
- Seattle King County Healthy Homes II project found additional benefits of adding environmental trigger reduction above education alone.
- Costs of ER visit can be \$500-\$1100. Cost of hospitalization can be \$5000-\$12,000.
- Intervention intensity can be stratified by disease severity.

Evidence base for healthy homes

Lead:

- Preventing lead exposure among children has been estimated to improve intelligence and behavior, resulting in increased earning potential and lower health care costs

Fall injuries:

- Unintentional falls were the #1 reason adults over 45 visited the ER
- 54% of all falling-related deaths of older people are caused by seniors falling down at home
- Grab bars, non-slip mats, entry and exit improvements, and reducing trip hazards greatly reduce falling risks

Analysis of the impact of GHHI interventions

The study enrolled ~240 (120 Tier I and 120 Tier II) participants from GHHI's Safe At Home program.

Primary Outcomes include:

- Medicaid utilization and cost reductions
- Improvements in asthma-related health outcomes
- Decreased days of work and days of school lost
- Improved energy efficiency

Will provide the rationale to:

- Leverage additional funds to expand proven home interventions
- Better incorporate upstream health interventions into the continuum of health care service delivery
- Move towards sustainable health financing for home interventions positively impacting health



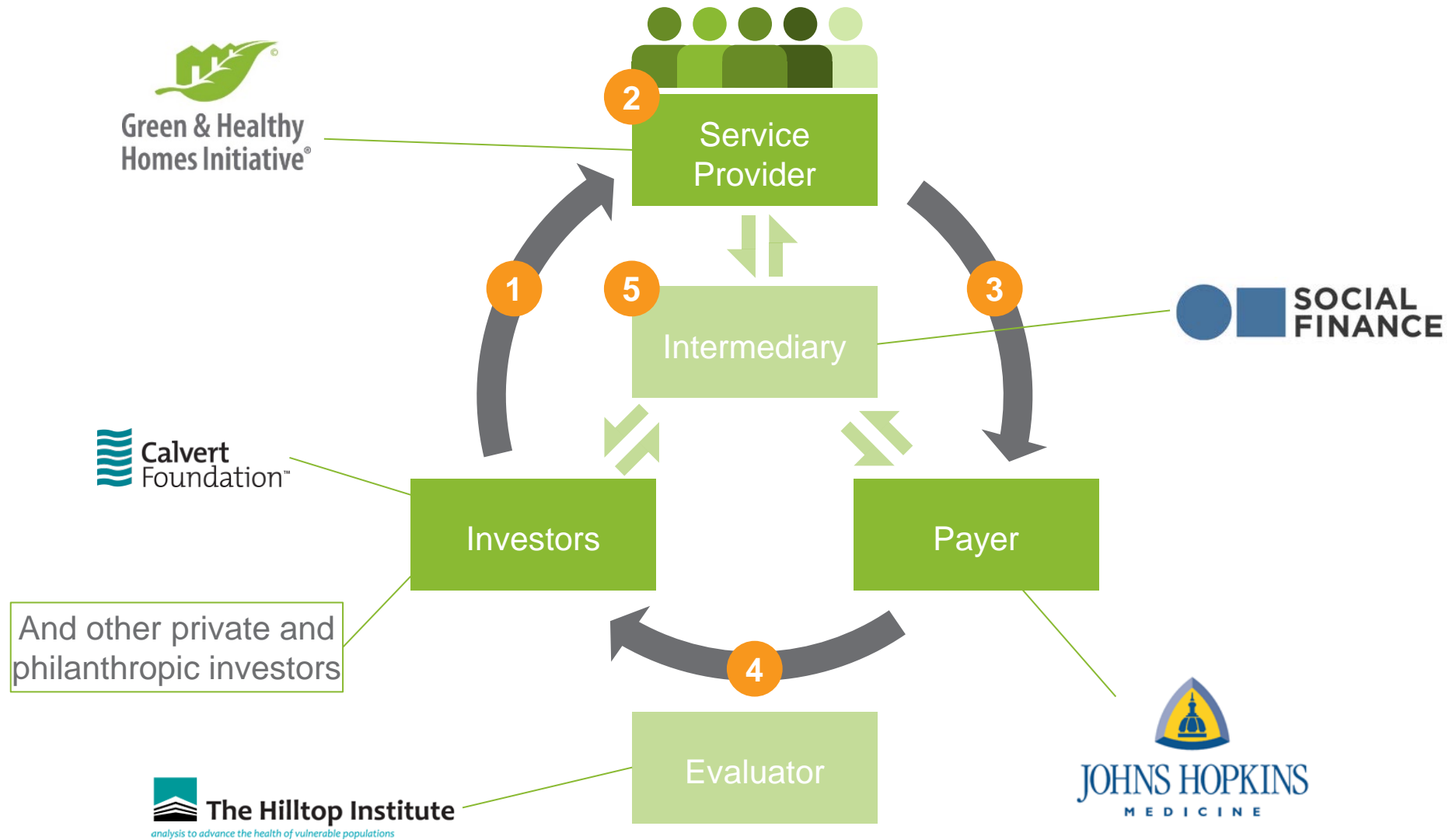
The Hilltop Institute
analysis to advance the health of vulnerable populations



JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

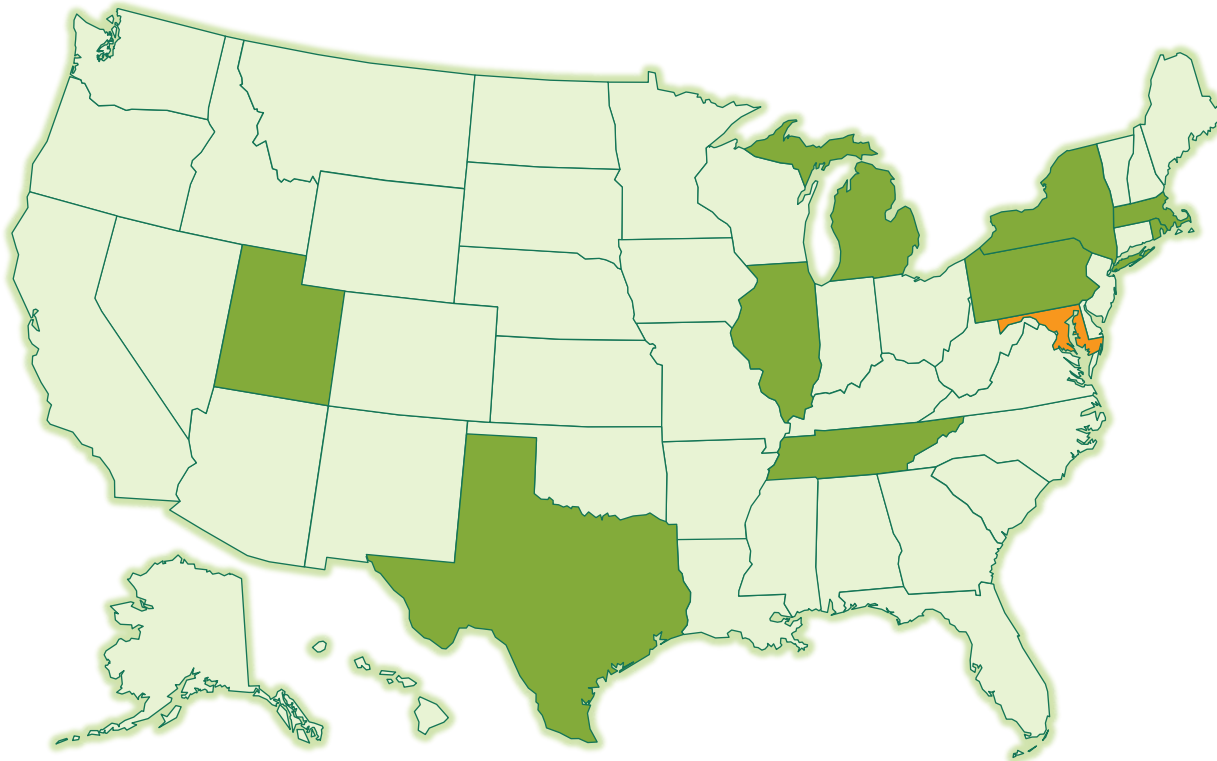


GHHI is currently leading transaction structuring work in Baltimore with Social Finance for an asthma-focused PFS project.



And other private and philanthropic investors

GHHI is also leading 10 asthma-focused PFS feasibility studies with healthcare and service provider partners across the country.



Feasibility studies



- Bronx, NY
- Buffalo, NY
- Chicago, IL
- Grand Rapids, MI
- Houston, TX
- Memphis, TN
- Philadelphia, PA
- Rhode Island State
- Salt Lake City, UT
- Springfield, MA

Transaction structuring

- Baltimore, MD

Funders of asthma PFS feasibility studies:



-  GHHI feasibility studies
-  GHHI transaction structuring

- Common funding sources for healthy home services: HUD, DOE, CDBG, philanthropy, utilities, and state and local housing funds do not meet the need.
- Currently no standard set of codes for healthy homes measures and approved costs for services
- Coordination of care between medical providers and community based services is still improving. New technology and data capacity can lead to quicker referrals to community-based services
- Expanding role for community health workers and non-clinical professionals
- Shift from fee for service to value based care and alternative payment models


End Goals

Healthy homes services designated as medical costs

Physicians writing prescriptions for healthy homes services

Housing professionals being a new frontline for healthcare

Increased data on the broad impact of healthy homes



A healthcare system that sustainably addresses the social determinants of health, focusing on prevention rather than costly acute care

Ruth Ann Norton

President and CEO

410-534-6477

ranorton@ghhi.org

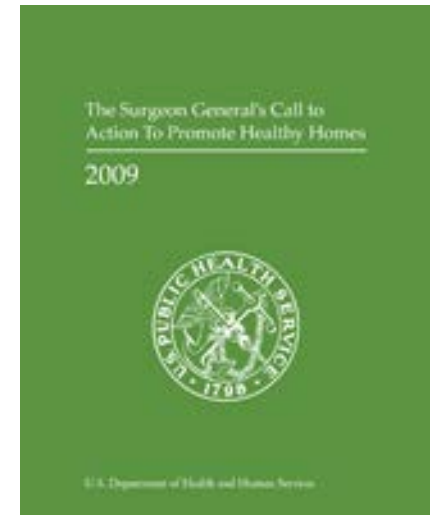
Twitter: @Ruth Ann Norton

GHHI Twitter: @HealthyHousing

www.greenandhealthyhomes.org

Housing conditions and the built environment are social determinants of health

- Surgeon General's Call to Action to Promote Healthy homes (2009)
- CDC and HUD Guides to Healthy Homes Measures
- NIH Guidelines for asthma management includes home interventions
- HHS' Guide to Community Preventive Services
- Billions lost annually
 - \$43.4B = lead poisoning
 - \$50.1B = asthma
 - \$19B = fall injuries for seniors
- 40% of asthma attacks from home triggers



GHHI's intervention produces healthier, safer, and greener homes in low-income communities...and cost savings to the healthcare system.




<https://youtu.be/rbF71IDmt4k>

GHHI's intervention produces healthier, safer, and greener homes in low-income communities...and cost savings to the healthcare system.

Asthma-related outcomes reported in *Environmental Justice*

- **66% reduction** in asthma-related hospitalizations
- **28% reduction** in asthma-related ER visits
- **50% increase** in participants never having to visit the doctor for asthma
- **62% increase** in participants reporting 0 school absences due to asthma
- **88% increase** in participants reporting 0 work absences due to child's asthma



GHHI awarded the National Environmental Leadership Award in Asthma Management in 2015 by EPA