



Green & Healthy Homes Initiative®

# Promoting Healthy Homes through Energy and Medicaid Partnerships

Energy Efficiency and Medicaid Working Together to Improve Housing Conditions

February 23, 2021

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# Goals

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- **Explore the business case** for Medicaid support for in-home asthma interventions, lead poisoning prevention and aging in place.
- **Discuss GHHI's work to advance approval for Medicaid funded preventive services** to reduce asthma episodes, lead poisoning and household injury through its work on asthma projects and with State Medicaid Offices.
- **Explore examples of Medicaid support** for home-based environmental health resident education, assessment and hazard remediation services.

## Asthma is disproportionately costly, increasingly pervasive, and has a controllable root cause.

### Asthma by the numbers

*Per annum in the United States of America*

**6.8** million children

**18.7** million adults

**1.58** million hospital days

**\$50** billion medical expense

### Asthma is:

- A potentially lethal chronic condition inhibiting breathing;
- The single most prevalent chronic juvenile condition;
- A major contributor to medical costs; and
- Caused or triggered by environmental factors.

### An unhealthy home:

- Is a primary environmental factor in health; and
- Can have substantial hidden costs to families.



### Home-based interventions with managed care:

- Remove environmental causes and triggers of asthma;
- Can be designed to have medium-run cost abatement over the cost of providing medical treatment; and
- Are very cost-beneficial.

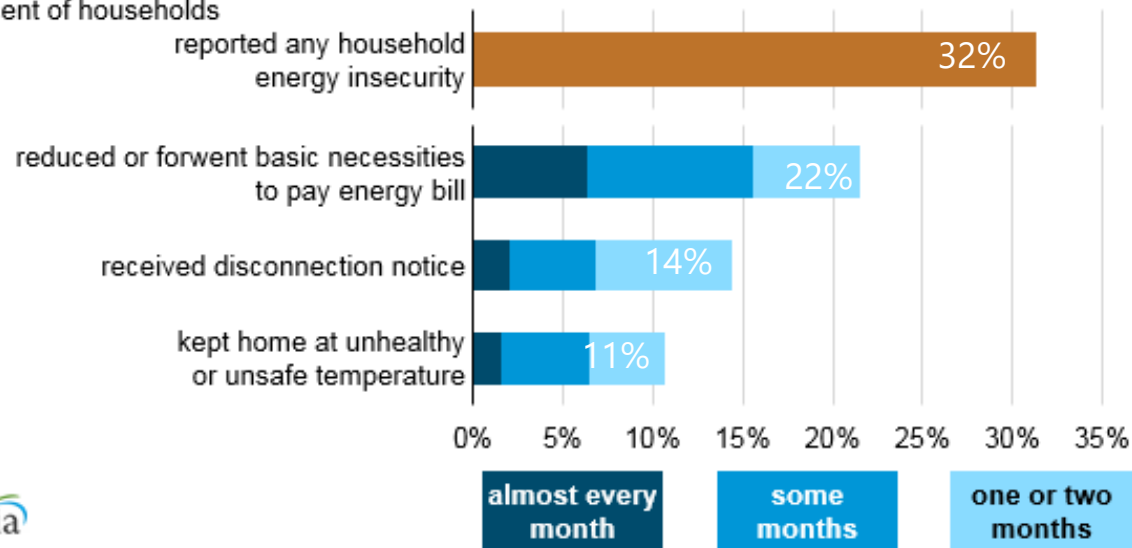
**The interventions have many other benefits.**



# Family Impact of Energy Inefficiency

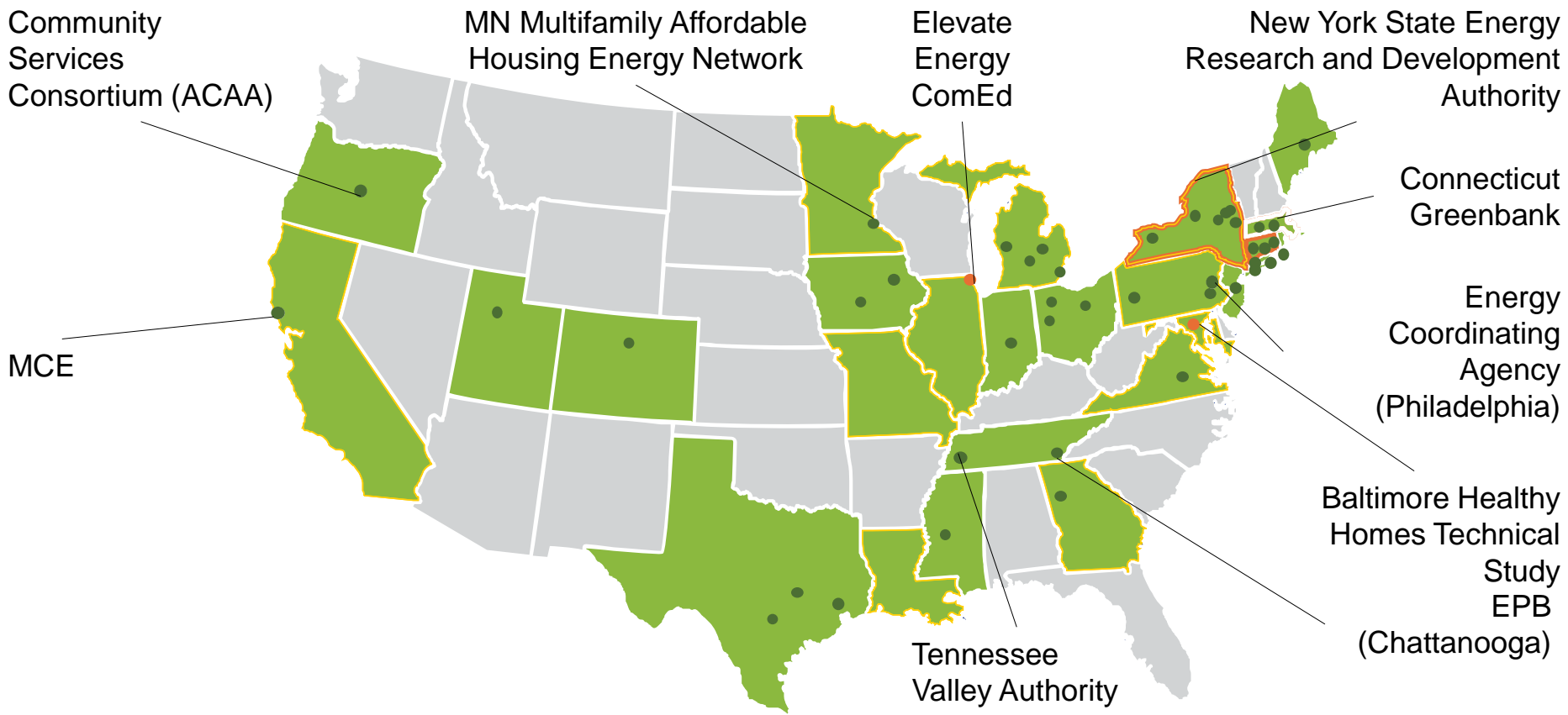
One in three U.S. households faces a challenge in meeting energy needs

**Households that experienced energy insecure situations, 2015**  
percent of households



Source: U.S. Energy Information Administration, *Residential Energy Consumption Survey 2015*

# GHHI Health and Energy Work





# The GHHI Differentiator: Cross-trained Teams

## Environmental Health Educator

- Conduct in-home resident education
- Coordinate pre and post client health surveys
- Coordinate follow-up client services

## Energy Auditor-Environmental Assessor

- Conduct pre-intervention environmental assessments
- Conduct energy audits
- Develop comprehensive scopes of work
- Conduct post-intervention quality control


## Multi-Functional Contractors

- Address the hazards identified on scopes of work
- Results in increased team capacity
- Exposes opportunity for job training and economic development for residents of low-income communities

\*\*Center for Employment Opportunities study in Buffalo found that workers who were cross trained in weatherization and healthy homes skills were able to earn \$4-8 more per hour







# The Challenge: Unhealthy + Energy Inefficient Housing



# The Burden of Sub-Standard Housing

**30 million families live in unhealthy homes**

## **Economic Impacts**

*14M missed work days*

- Reduced productivity
- Lower job security
- Less access to benefits

## **Health Impacts**

*\$155B in direct medical costs (lead, asthma, injury)*

- Environmental hazards
  - lead paint
  - asthma triggers
- Mental health conditions
  - Stress
  - anxiety
- Childhood stress
  - chronic health conditions

## **Education Impacts**

*14M missed school days*

- Poor grade level performance
- Lower graduation rates
- Lost earning potential





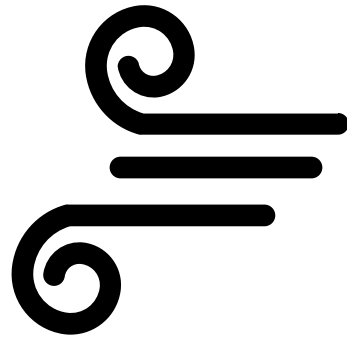
# Energy Efficiency and Health

## Direct Impacts



### Electricity

Poor lighting



### Air

Temperature  
Quality



### Water

Mold  
Allergens



### Hazards

Lead  
Asbestos  
Pests





# Non-Energy Benefits

## Baltimore Healthy Homes Technical Study

For high-risk asthmatic children, addressing weatherization needs increased Medicaid savings 5X

### Average Medicaid costs per client (12 months pre/post)

Group	% Change	\$ Change	Baseline	n
Control (no intervention)	-18%	-\$898	\$5,063	239
Home Visits, Supplies	-7%	-\$530	\$7,821	128
Home Repair + Home Visits, Supplies	-35%	-\$2,959	\$8,415	111






**Home visits:** primarily parental education

**Supplies:** carpet and other home surface cleaning or replacement, window sealing, and basic pest management

**Home repair:** Major modifications, such as gutter and roof repairs, and even furnace repairs or replacements.











# Health Impacts of Efficiency Programs

Measure	Health Impact	Example rebates	Common Gaps
 <b>Electric Baseload</b> Improves lighting from: <ul style="list-style-type: none"><li>• Having affordable lights</li></ul>	<ul style="list-style-type: none"><li>• Trip/fall</li></ul>	<ul style="list-style-type: none"><li>• Lighting</li><li>• Appliances</li></ul>	
  <b>HVAC</b> Decreases thermal stress from: <ul style="list-style-type: none"><li>• Enabling affordable heating and cooling</li></ul> Improves air quality from: <ul style="list-style-type: none"><li>• Reduced allergens</li><li>• Reduced moisture and mold</li></ul>	<ul style="list-style-type: none"><li>• Cardiovascular</li><li>• Respiratory</li></ul>	<ul style="list-style-type: none"><li>• Heating/Cooling</li><li>• Fans</li><li>• Thermostats</li><li>• HVAC Tune-up</li></ul>	<ul style="list-style-type: none"><li>• Ventilation</li></ul>
  <b>Building envelope</b> Improves air quality from: <ul style="list-style-type: none"><li>• Reduced moisture and mold</li><li>• Reduced outdoor allergen</li></ul> Decreases thermal stress from: <ul style="list-style-type: none"><li>• Insulation</li></ul>	<ul style="list-style-type: none"><li>• Respiratory</li><li>• Cardiovascular</li></ul>	<ul style="list-style-type: none"><li>• Air sealing</li><li>• Insulation</li></ul>	<ul style="list-style-type: none"><li>• Roofs</li><li>• Windows</li></ul>



# Achieving Whole Home – Health/Safety

	<b>Measure</b>	<b>Health Impact</b>	<b>Example measures</b>
	<b>Plumbing</b> Improves air quality from: <ul style="list-style-type: none"><li>• Reduced moisture and mold</li></ul>	<ul style="list-style-type: none"><li>• Respiratory</li></ul>	<ul style="list-style-type: none"><li>• Leaking pipes</li></ul>
	 <b>Hazard Removal</b> Removes harmful chemicals	<ul style="list-style-type: none"><li>• Respiratory</li><li>• Cancer</li><li>• Lead poisoning</li></ul>	<ul style="list-style-type: none"><li>• Mold</li><li>• Asbestos</li><li>• Radon</li><li>• Lead</li></ul>
	 <b>Pests &amp; Sanitation</b> Removes allergens	<ul style="list-style-type: none"><li>• Respiratory</li></ul>	<ul style="list-style-type: none"><li>• Pest management</li><li>• Hypo-allergenic bedding, vacuum</li></ul>
	 <b>Air Quality</b> Removes irritants	<ul style="list-style-type: none"><li>• Respiratory</li></ul>	<ul style="list-style-type: none"><li>• Combustion gases</li><li>• VOCs</li></ul>
	 <b>Hazard Repair</b> Removes injury hazards	<ul style="list-style-type: none"><li>• Trip/fall</li><li>• Unintentional injury</li></ul>	<ul style="list-style-type: none"><li>• Fall hazards (e.g. uneven stairs)</li><li>• Safety hazards (faulty wiring)</li></ul>



# Why healthcare cares about housing: Social Determinants of Health

**80%**

80% of health outcomes are driven by social determinants of health

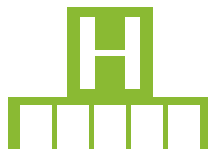
**3%**

While only 3% of healthcare dollars are spent on preventive services



# Implementation of evidence-based practices builds on existing clinical care, including education in context and remediation of environmental triggers.

## Business services comprising comprehensive interventions



### Existing clinical care

Patients receive the existing standard of care for asthma, including medications and assessment & monitoring

**Existing**



### Home-Based Education

Patients receive education on how to self-manage their specific environmental triggers in context.

**New Setting**



### Environmental Remedy

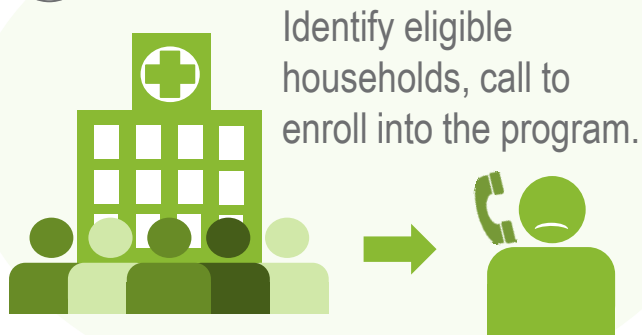
The causes and triggers of asthma in the home are addressed to ensure immediate improvement.

**New Service**

CDC's Community Preventative Task Force and NIH's Expert Panel recommend home-based interventions for patient care and remediation of environmental triggers based on independent systematic reviews of scientific literature.

# Evidence-based Interventions Produce Measurable Results

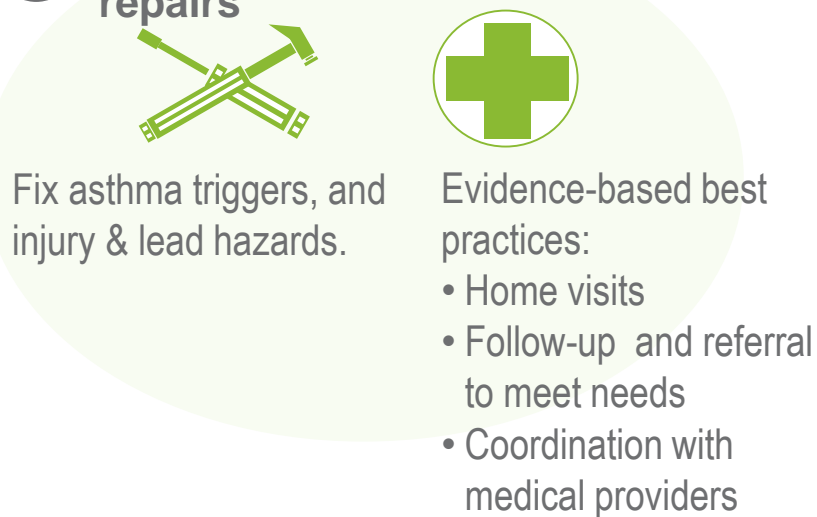
## 1 Intake and enrollment



## 2 Initial Home Visit



## 3 Healthy Homes education and home repairs



## 4 Evaluation of outcomes





# How Healthcare is Paying for Home Repairs

## Hospital Community Benefits

*Any age (un- & under- insured)*

**Pennsylvania Health System:** Investment in Lead Remediation

## CHIP State Plan Amendment

*Children*

**Michigan:** \$119M to remediate lead hazards  
**Maryland:** \$14M to remediate asthma and lead hazards

## Medicaid Managed Care Organizations

*Any age*

**Michigan:** assess and remediation of asthma triggers (pilot)  
**Maryland:** assess and supplies to mitigate asthma triggers

## Medicaid Home & Community Based Services

*Older adults, disabled*

**Most states:** home accessibility modifications

## Medicaid Demonstration Waivers (1115)

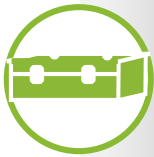
*Any age*

**Oregon:** 'flexible services' includes air conditioners for asthmatics

## Medicare Advantage

*Older adults (65+)*

**St. Louis:** 'supplemental benefits' includes home repairs for fall prevention

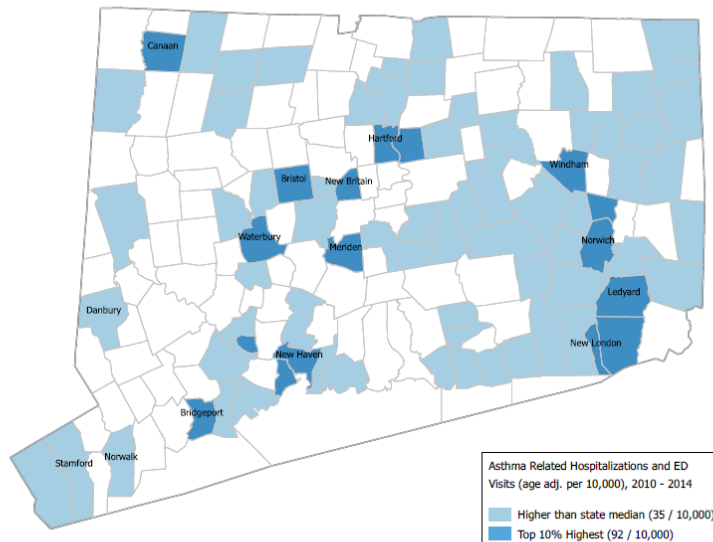


Connecticut

# Connecticut's Housing-Related Health Needs

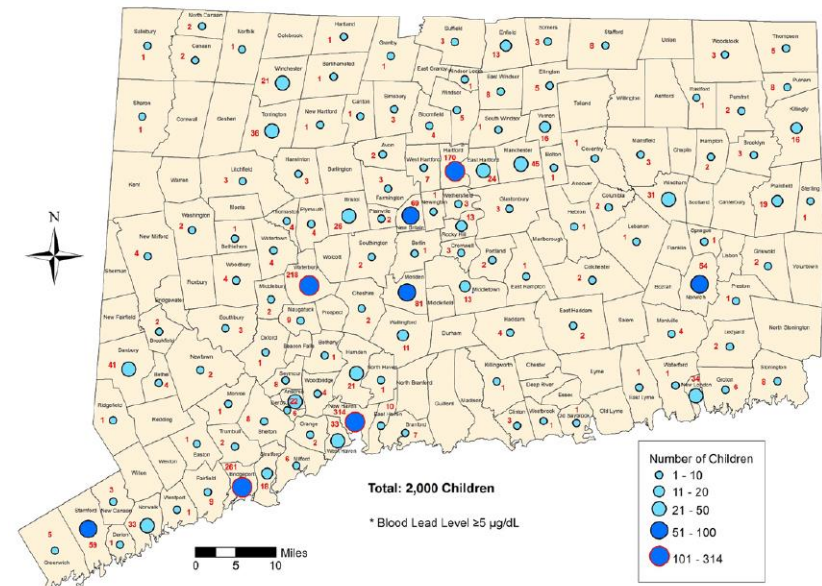
- **2,000 children under the age of six are diagnosed with elevated blood lead levels in Connecticut.**
- Connecticut had **over 21,700 annual asthma-related hospitalizations**, and over **\$102 million in Medicaid claims related to asthma.**
- **Falls** were involved in over **42,000 hospitalizations in Connecticut over 5 years.**

Per Capita Asthma-Related Hospitalizations and ED Visits (Kids and Adults), 2010 - 2014



Source: Green & Healthy Homes Initiative (GHHI) Analysis of Connecticut Department of Public Health Asthma Program data derived from Connecticut Hospital Information Management (CHIME), 2010 - 2014

Number of Lead Poisoned Children\* Under 6 Years Old by Town, Connecticut 2016

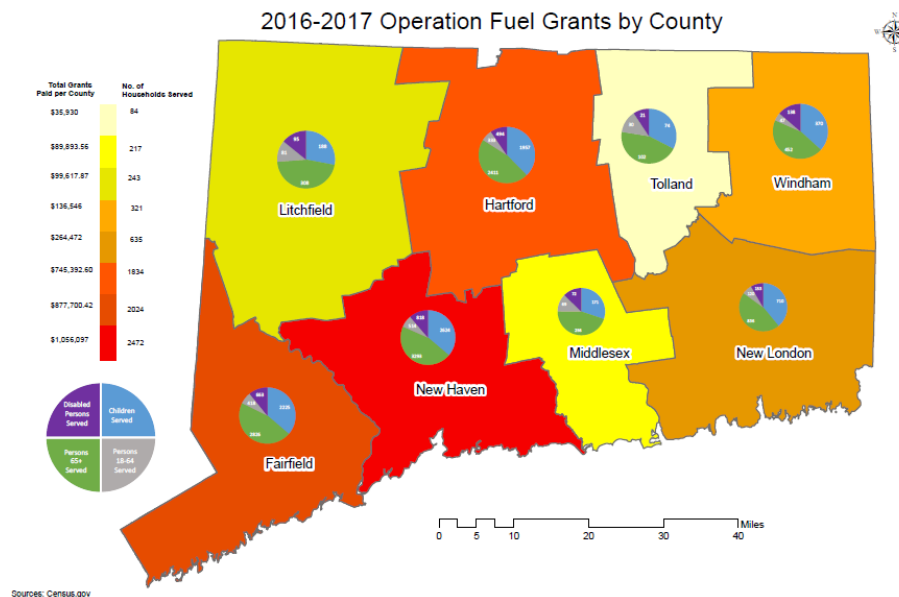


# Connecticut's Housing-Related Energy Needs

## Reducing Energy Burdens for Those That Need It Most

Energy costs are a significant portion of household expenses, but 30% of homes can't be served due to health & safety issues

- Among the highest energy rates and costs in the country
- More than half our low income residents suffer a **high energy cost burden** (>10% of income)
- “Energy Affordability Gap” ranges from \$1,250 to \$2,500 per year
- **Energy efficiency on its own can improve indoor air quality and health**



# Connecticut Green & Healthy Homes Project

## Working Together to Advance Connecticut's Health, Energy and Housing Goals



# Connecticut Green & Healthy Homes Project

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## Vision

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*“Any family across Connecticut – whether they come to a health facility for treatment of asthma, contact their utility for energy efficiency services, or seek housing repairs from a local social service nonprofit – would get the package of interventions needed to make their home green, safe and healthy.”*

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## How?

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### **Evidence-based housing interventions**

- Address health and safety hazards and improve energy efficiency
- Support housing stability and affordability through lower energy burdens
- Support academic achievement and career advancement through improved health outcomes

### **Our collective opportunity:**

- Solve the funding gaps for health and safety remediation
- Break down silos – on the funding side and the delivery side
- Focus on sustainable solutions – so we can solve the problem at scale across the state

# Unlocking Systemic Sustainable Funding for Interventions

1

Effectively make the case for healthcare investment in the existing **robust service delivery infrastructure**: energy-efficiency contractor network that serves 20,000 households each year (HES and HES-IE) and Medicaid home visiting agencies that serve 15,000 households each year

2

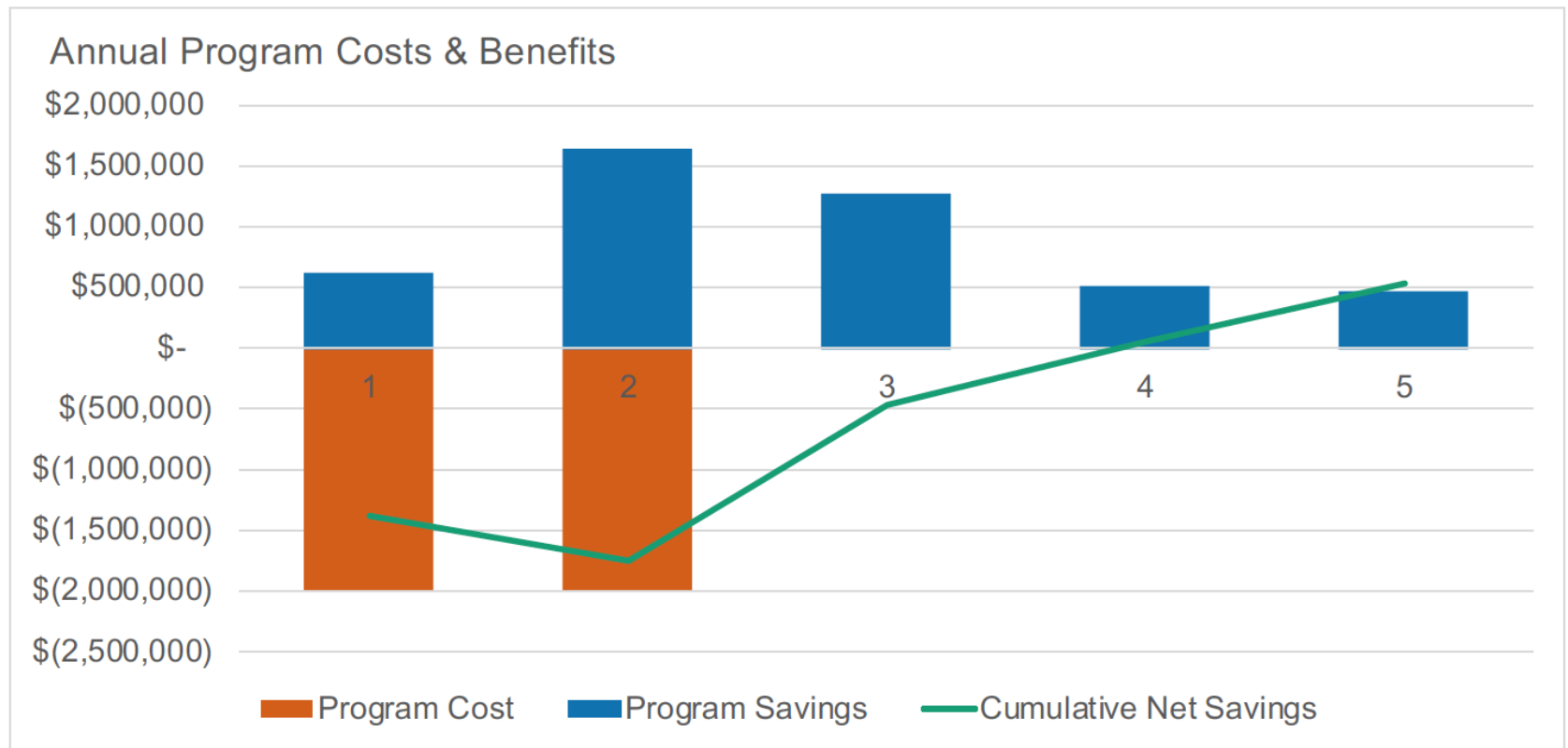
Evidence-base is clear that **healthcare savings can pay for some healthy/safety improvements**. Used real CT HUSKY data to determine the specific **return on investment** for housing H&S interventions.

3

Address households with highest energy, housing, and health burdens, which also targets the **same households at highest risks of COVID-19: older adults, African-Americans, and Latinos**



# Healthcare Benefit-Cost Analysis



# Basic Program Model

The program combines in-home education for self-management of health conditions and the assessment and remediation of housing hazards and energy-efficiency opportunities.

1

**In-home education** and ongoing follow-up care and coordination



**Healthy Homes Educator:**  
Provides education, supplies

- Follow-up and referral to meet needs
- Care coordination with medical providers

2

**Integrated assessment & home modifications**  
address health/safety hazards and energy-efficiency needs



**Assessor:** Comprehensive environmental assessment and energy audit, coordinated scope of work



**Contractors:** Address asthma triggers, trip/fall risks, broader healthy home measures, and energy efficiency interventions

# CT Green and Healthy Homes Resources to Leverage

*Findings from the asset and gap analysis show a strong foundation for this model...*

**National leader in energy-efficiency services & green financing.**

Unique **organization of the state's public insurance delivery system** may enable support for healthy housing services with proven health outcomes.

Robust **public-private leverage models** in place in housing and energy sectors (DOH, CHFA, and CGB).

State **agencies share a vision** for improving housing quality to advance goals across the housing, health and energy sectors.

**CT Energy Efficiency Fund Home Energy Solutions Program is a strong framework for** housing health and safety interventions, sustainably supported through a mix of:

- Health insurance outcomes-based payments
- Funding medically-necessary housing interventions through CHIP & Medicaid
- Hospital community benefits investment; public/philanthropic investment (leveraged to attract private capital)
- Federal funds



## Project Goals over Three Phases

- To provide a **comprehensive analysis** of the economic, technical and operational **feasibility** of a statewide model for housing, health and energy services in Connecticut.
- To identify **sustainable support** via innovative strategies for public, private and philanthropic investment in housing, health and energy services, including outcomes-based Medicaid investment, philanthropic support and leveraged public investment.
- To design models that **leverage and expand Connecticut's existing framework for Utility Rate Payer-Funded Energy Efficiency Services** to implement a comprehensive statewide housing, health and energy services model.

### PHASE I

*Complete*

- Asset and Gap Analysis (Pre-Feasibility Research)
- Convenings

### PHASE II

*Summer 2018-Summer 2019*

- Feasibility Research (Medicaid ROI analysis)
- Convenings
- Pilot Design

### PHASE III

*2019-2021*

- Multi-site pilot implementation
- Evaluation
- Recommendation for statewide model

New York State

Partners



**NYSERDA**



**Department  
of Health**

## Reforming the Payment System and Moving from Volume to Value



- **HH care management payments will be part of VBP arrangements**
- **VBP will ensure DSRIP transformation efforts remain successful**



Source: New York State Department of Health Medicaid Redesign Team. *A Path Towards Value Based Payment, New York State Roadmap for Medicaid Payment Reform*. NYSDOH DSRIP Website. Published March 2016.





# NYSERDA

## New York State Energy Research & Development Agency Pilot Design

- **Phase 1: Seeding the market**
  - \$10 million in Rate-payer dollars to fund in-home education + healthy home repairs
- **Phase 2: Medicaid co-investment**
  - NY requires Medicaid insurers to develop value-based contracts with community-based organizations, providing flexibility for them to pay for healthy homes interventions
- **Cross-trained implementers**
  - Single assessor for energy and health assessment
  - Same set of contractors for energy and healthy home repairs