

Connecticut Green and Healthy Homes

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



Hartford, CT - June 19, 2019



The Challenge: Unhealthy + Energy Inefficient Housing

The Burden of Sub-Standard Housing

Unaffordable, inefficient, and unhealthy



30M families live in unhealthy homes

Homes with environmental hazards are making their residents sick



14.4M missed days of school each year

Asthma is the top reason students miss school



14.2M missed days of work each year

Collateral burden of sick children is missed days of work for parents and caretakers



Low income families spend 20% of monthly income on energy costs

VS.

3.5% in other households



\$81B+ spent on asthma



\$31B+ spent on slip & fall injuries



\$43B+ spent on lead poisoning

Over \$155B in economic costs related to these hazards



Becoming More Obvious:

The impacts of sub-standard housing

Economic Impacts

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

Health Impacts

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

Education Impacts

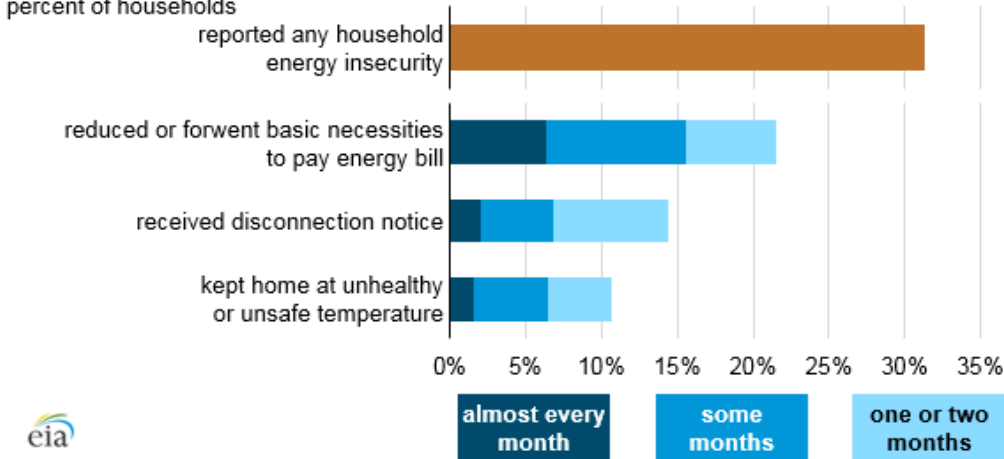
- Poor grade level performance
- Lower graduation rates
- Lost earning potential

Family Impact of Energy Inefficiency

- One in five households reduce or forgo necessities such as food and medicine to pay an energy bill
- 14% of households experience energy service disconnection annually
- 11% of households keep home at an unhealthy or unsafe temperature

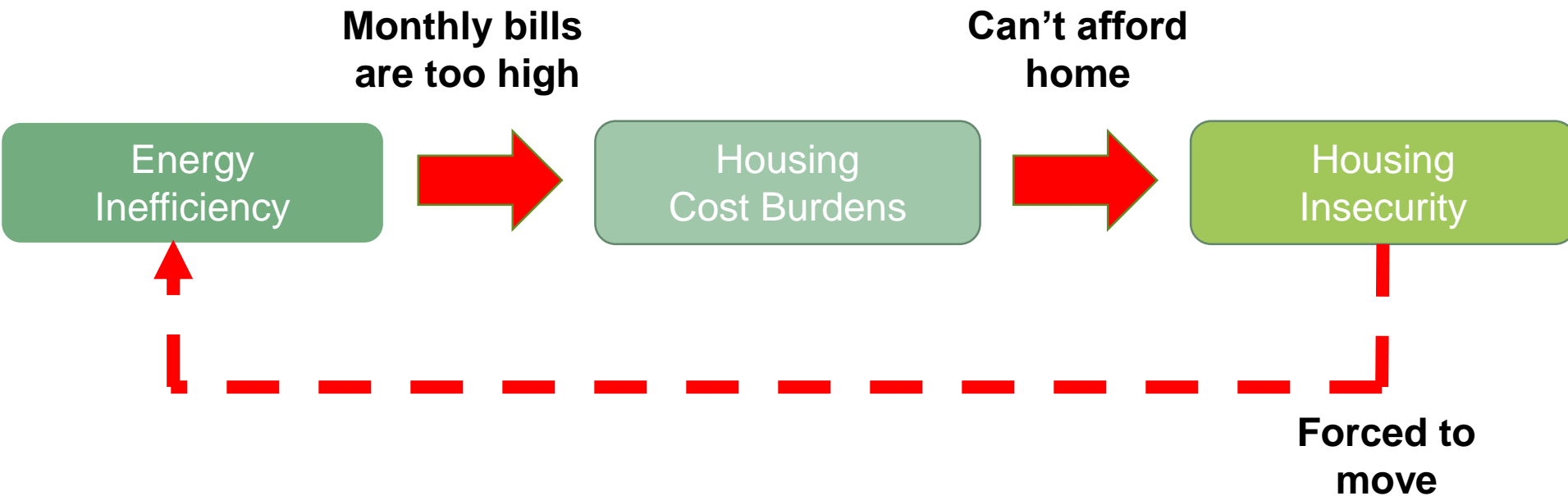
One in three U.S. households faces a challenge in meeting energy needs

Households that experienced energy insecure situations, 2015
percent of households



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

Energy (In)Efficiency and Family Stability



Assessing the Energy Evidence

National Evaluation of DOE Weatherization Assistance Program (WAP)

Costs & ROI:

- Oakridge National Lab's study (2010) estimated the value of WAP Energy Savings at \$3,190 per home
- Including Non-Energy Benefits, the total savings rose to \$13,167 – against an average cost of \$6,812
- Savings-to-Investment Ratio of 0.9
 - Energy Benefits compared to Total Savings
- Total Cost with Return on Investment of 1.93

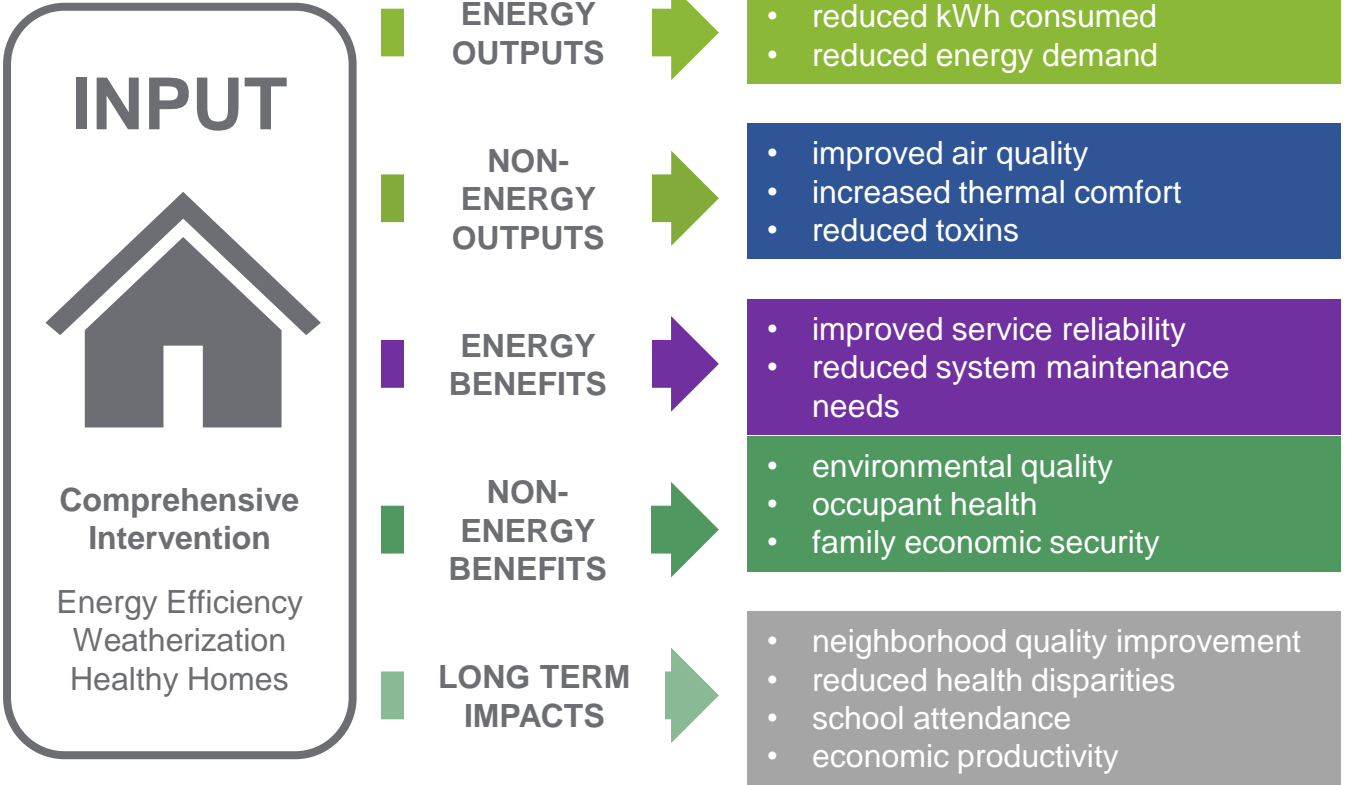
Non-Energy Benefits:

- Reduced asthma symptoms - ED visits and hospitalizations
- Reduced thermal stress
- Reduced CO poisonings and fire mortality
- Improved mental health & physical health
- Budget issues (utility, food, medical, housing, etc.) reduced post-weatherization. Important connection between budget problems and 'trade-off' in dealing with health and other priorities
- Improved school and work attendance

The Pathways in Practice

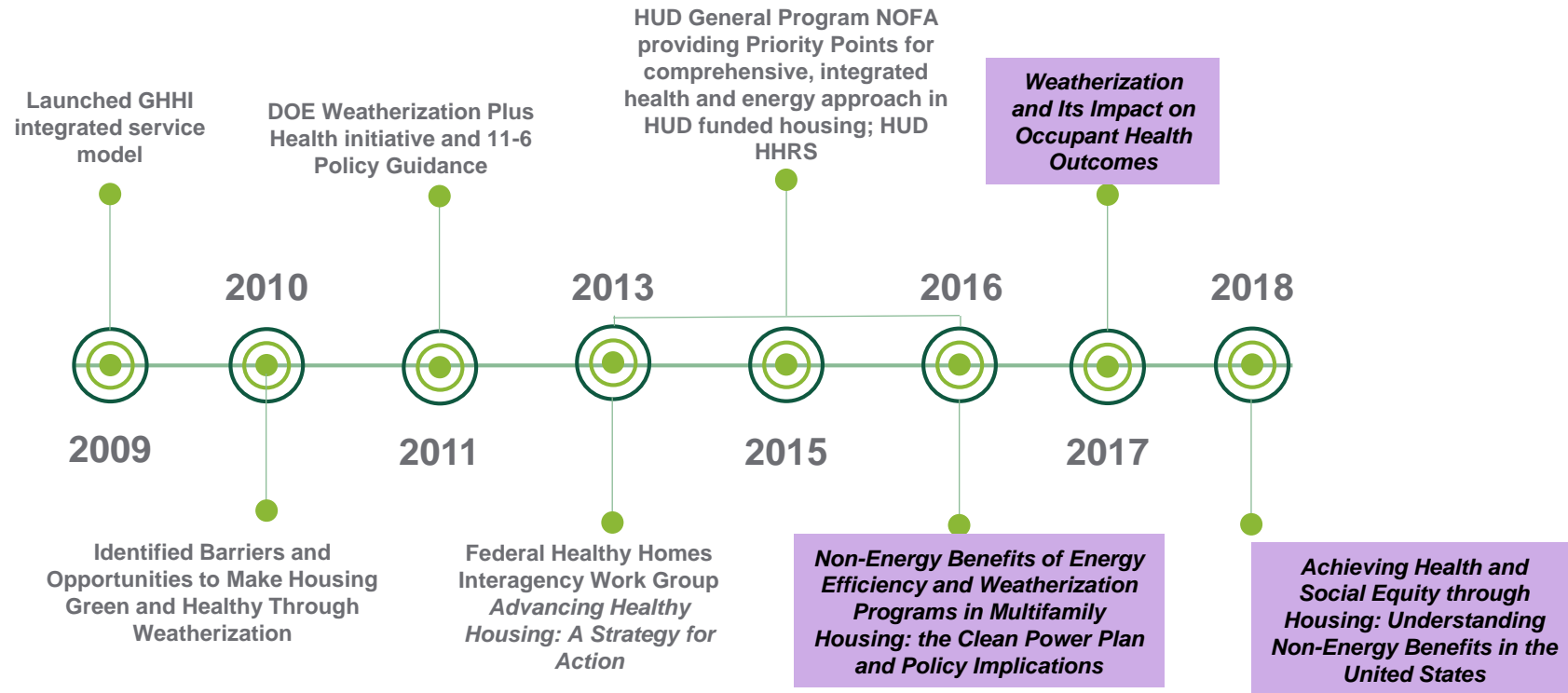
Achieving Health and Social Equity through Housing:
 Understanding the Impact of Non Energy Benefits in the United States

 Green & Healthy Homes Initiative



Applying Lessons to Energy Efficiency

Quantifying the Non-Energy Benefits and Building Field Capacity



Affordable Efficiency





Developing Integrated Models

Strong Evidence Base for Preventive Healthy Homes Services

2007



National Institutes
of Health

Patients who have asthma at any level of severity should:

- Reduce, if possible, exposure to allergens to which the patient is sensitized and exposed.
- Know that effective allergen avoidance requires a multifaceted, comprehensive approach; individual steps alone are generally ineffective.

2009



Surgeon General's Call to Action to Promote Healthy Homes

- Describes the steps to protect themselves from disease, disability and injury that may result from home health hazards
- Know that effective allergen avoidance requires a multifaceted, comprehensive approach; individual steps alone are generally ineffective.

2011



...the Task Force recommends the use of home-based, multi-trigger, multicomponent interventions with an environmental focus for children and adolescents with asthma, on the basis of strong evidence of effectiveness in reducing symptom-days, improving quality of life scores or symptom scores, and reducing the number of school days missed.

Evidence Based Interventions Produce Measurable Results

1 Intake and Enrollment



Identify eligible households, enroll into the program



2 In-Home Resident Education & Housing Assessment



Healthy Homes Educator:
Provides education, supplies

Assessor:

1. Conducts comprehensive environmental assessment and energy audit
2. Develops coordinated scope of work

3 Housing Interventions & Additional Care Coordination



Addresses asthma triggers, injury risks, lead hazards and implements energy efficiency measures



Evidence-based best practices

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

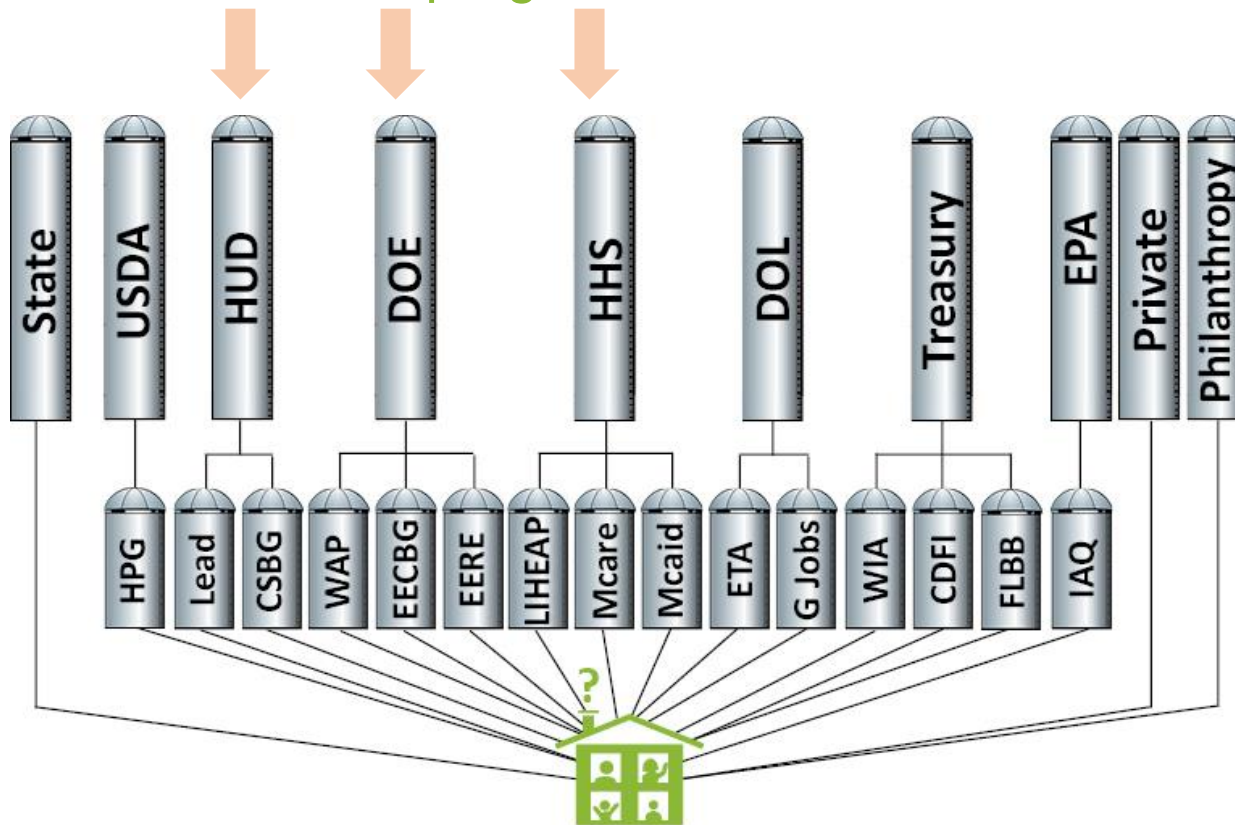
4 Evaluation of Outcomes & Payment Mechanisms





A Problem of Silos:

Access to valuable programs is not streamlined



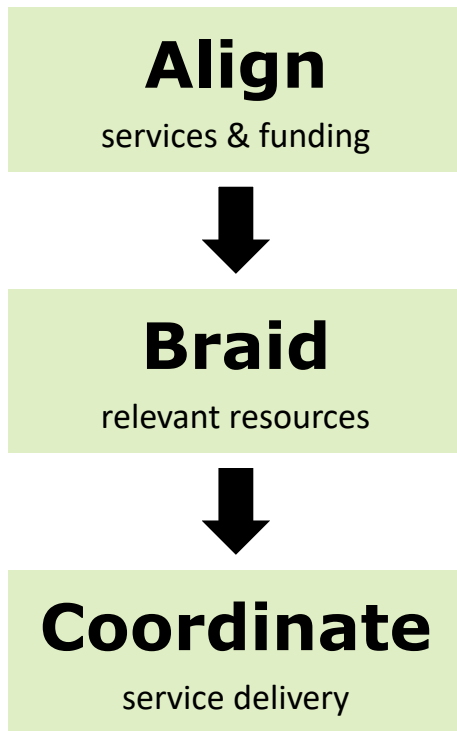
Even federal programs have different eligibility criteria

| Program: | Criteria: |
|------------|-------------|
| HUD CDBG | 80% of AMI |
| HUD Lead | 80% of AMI |
| DOE WAP | 200% of FLP |
| HHS LIHEAP | 125% of FLP |

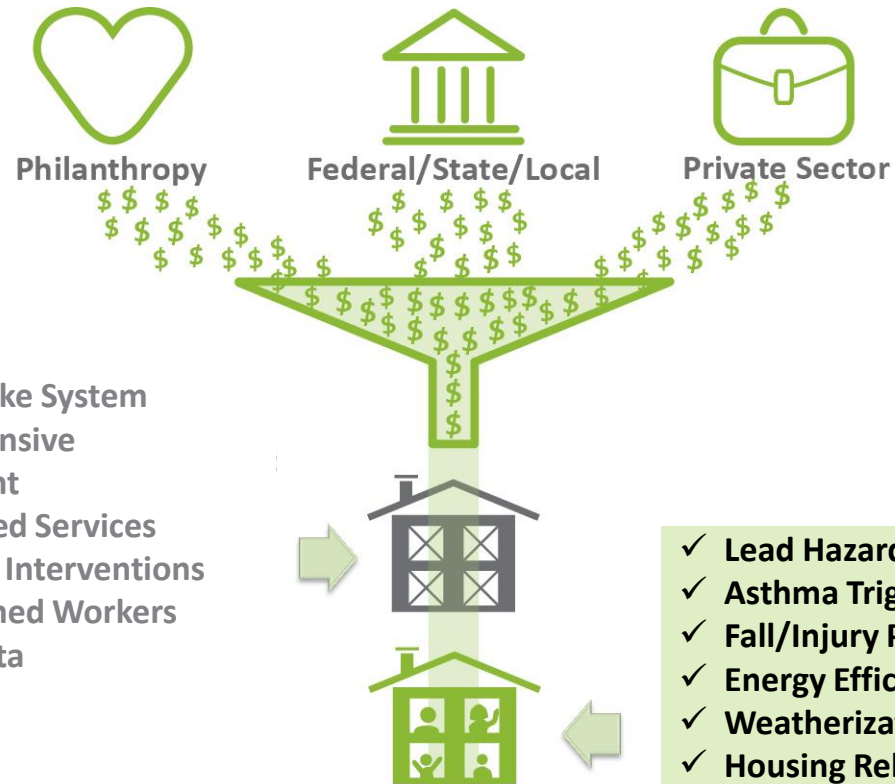


The GHHI Solution:

Address the whole home



- Single Intake System
- Comprehensive Assessment
- Coordinated Services
- Integrated Interventions
- Cross-Trained Workers
- Shared Data



The 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*



Integrated, Comprehensive Models Produce Measurable Outcomes

GHHI Baltimore

- **66%** reduction in asthma-related hospitalizations
- **62%** increase in asthma-related perfect school attendance
- **88%** increase in never missing work due to their child's asthma

GHHI Philadelphia

- **70%** fewer asthma-related client hospitalizations
- **76%** fewer asthma-related client ED visits

GHHI Cleveland

- **58%** reduction in asthma-related client hospitalizations
- **63%** reduction in asthma-related client ED visits

Research by:

Johns Hopkins University, Morgan State University School of Community Health

Philadelphia Department of Health

Dr. Dorr Dearborn, Case Western University, EHW, University Hospitals

Family Outcomes

Smith Family

Pre-Intervention Situation:

- Family of four with a son who has severe asthma
- History of repeated asthma episodes resulting in hospitalizations on average of three times per year (Average stay: 1 week)
- Deteriorated, lead hazardous windows; high dust mite levels; mouse infestation; lack of venting; high VOC usage; poorly weatherized

Costs: \$12,256 – Asthma specific costs \$1,472

Partners: HUD OLHCHH (HHD), CDBG, CSBG, Maryland Energy Administration, Foundations

Results: Allergens & lead hazards remediated; Home weatherized

Outcomes:

- Son was not hospitalized due to asthma triggers in the home in the 12 months post-intervention
- **Avoided medical costs of \$48,300 in first year alone**
- Annual energy cost savings of **\$721**



The Business Case for Lead and Healthy Homes

Lead poisoning costs society **\$50.9 billion** annually and yet is **entirely preventable**

Impacts during Childhood



- **535,000** children under 6 with elevated blood lead level
- 700% increase in school drop out rate
- 600% increase risk of juvenile delinquency
- Lower IQ, ADHD, special education



Impacts in Adulthood

- Diminished earnings from lower IQ
- Higher likelihood of incarceration
- Higher social service usage

ROI between \$17-221 per dollar invested in preventive lead hazard remediation

Increased lifetime earnings of \$1,024,000 per child if lead poisoning prevented

Asthma results in **\$50 billion in annual medical costs**; 40% of costs are linked to environmental triggers in the home



6.8 million children
18.7 million adults
1.58 million hospital days

\$500-\$1,000
cost of ER visit

\$7,500-20,000
cost of hospitalization



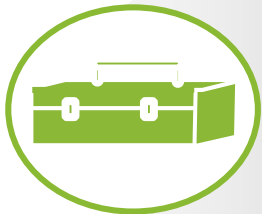
\$1
invested in asthma interventions



\$5.30 - \$14
return on investment

Lesson Learned: Tap into Innovative Funding

Applying best practices to support Affordable Efficiency



Medicaid, CHIP Waivers & State Plan Amendments



Hospital Community Benefits



Pay for Success



MCOs and Value-based Payments



Medicare Advantage Plans



Administrative Resources

Partnering with Healthcare and Housing

Medicaid/CHIP Innovations Funding Homes

Michigan

- \$119 million in CHIP funds for lead hazard remediation and related services; workforce development

Maryland

- \$14.4 million in CHIP funds for asthma trigger and lead hazard remediation

Ohio & Indiana

- \$5 million (OH) & \$3 million (IN) CHIP funds for lead testing and remediation

Missouri

- Medicaid funding allowable for Asthma resident education; Environmental assessment services

Oregon

- Rule 1115 Waiver allowing for flexible services including asthma home visiting resident education

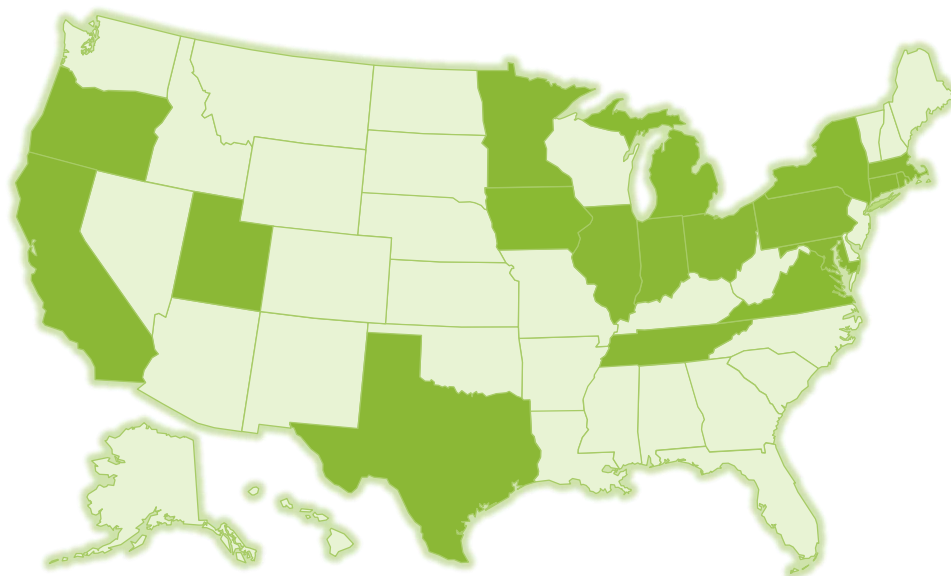
Rhode Island

- Rule 1115 Waiver allowing for lead remediation

Virginia

- Rule 1115 Waiver for asthma interventions

GHHI Innovative Healthcare Financing Projects



- Allegheny County - UPMC and Allegheny Co. Health Department
- Baltimore - Priority Partners MCO
- Buffalo - Oishei Children's Hospital and IHA MCO
- Chattanooga - green|spaces and Erlanger Children's hospital
- Chicago - Presence Health, Elevate Energy, & NextLevel MCO
- Cincinnati - People Working Cooperatively
- Connecticut Medicaid and CT Greenbank
- Grand Rapids - Priority Health MCO, Healthy Homes Coalition of West Michigan
- Houston - UnitedHealthcare & Baylor
- Houston - Community Health Choice MCO
- Indiana - Indiana Joint Asthma Coalition
- Iowa - Healthy Homes Des Moines
- Marin - Contra Costa Health Services & MCE
- Memphis - Le Bonheur Children's Hospital & UnitedHealthcare, Amerigroup, and BlueCare
- Minneapolis - MN Energy Efficiency For All
- New York City - Affinity Health Plan, AIRnyc, & AEA
- New York City - LISC
- New York Medicaid and NYSEDA
- Oregon - Community Services Consortium
- Philadelphia - National Nursing Care Consortium
- Richmond City Health District
- Rhode Island - State Medicaid and Integra Accountable Entity
- San Antonio - SA Asthma Collaborative
- Salt Lake - University of Utah Health Plans and Salt Lake County
- Springfield - Health New England MCO, Baystate Health, Public Health Institute of Western Mass
- Worcester - UMass Memorial Hospital

Funders



State-Level Impacts

Integrating Health, Energy, and Housing in New York



| | |
|-------------------|--|
| Goal | Build capacity for services throughout the state and design an integrated delivery model |
| Outcome | Reduce energy usage, asthma episodes and household injury and related energy and medical costs |
| Approach | Evaluate the possibility of supporting energy, health and housing services through sustainable public and private funding. |
| Partners | NYSERDA, NYSDOH, NYHCR |
| Commitment | NYSERDA and Governor committed \$10,000,000 for Pilot Phase in Fall 2019 |



Systems-Level Opportunities

Bringing Innovative Financing to Support Comprehensive Interventions

| | | |
|---|--|--|
| New York Attorney General Funds Buffalo \$2.3M | Rhode Island Attorney General Funds \$1.2M | MD Public Service Comm. Utility Merger Funds Resulting In... |
| New York Attorney General Funds Syracuse \$1M | Austin Energy Holly Settlement Funds \$1.2M | Maryland Department of Housing & Community Dev. \$19M |
| New York Attorney General Funds Rochester \$1M | All non-traditional funding sources that enable energy efficiency upgrades to occur side- by-side | Baltimore City Housing & Community Dev. \$19.8M |

Current Challenge:

**Meeting CT Resident Needs at the
Intersection of
Energy, Health and Housing**

Connecticut's Housing-Related Health and Energy Needs

Health



Asthma: 21,700 annual asthma-related hospitalizations, and over \$102 million in Medicaid claims



Falls: Over 42,000 hospitalizations in over 5 years



Lead Poisoning: 2,000 children under 6 years old are diagnosed with elevated blood lead levels

Energy



Residents spend \$5.2 billion/year to heat, cool, light and provide hot water – more than state's budget for health care or education

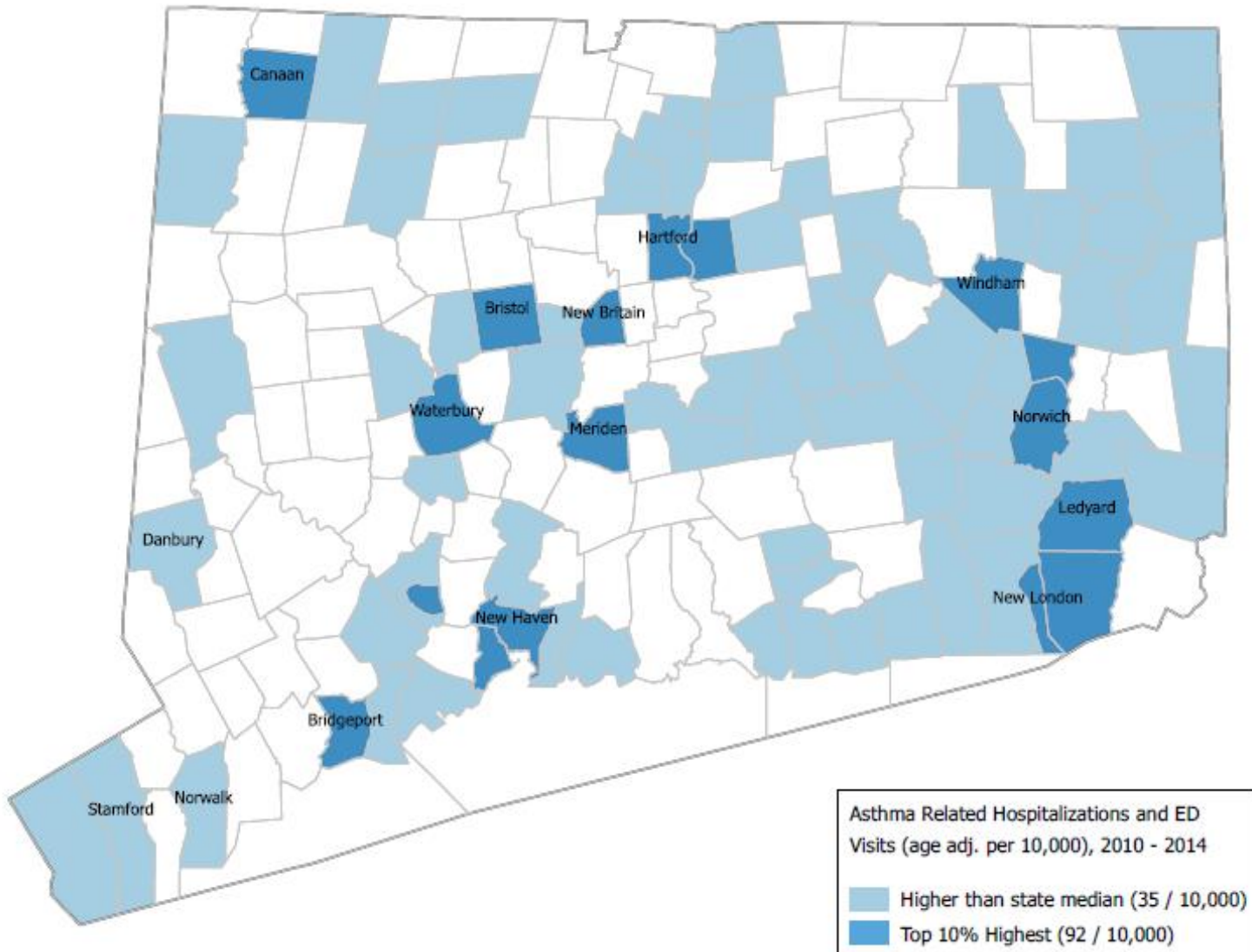


The average energy burden for low-income households is 60% higher than the national average



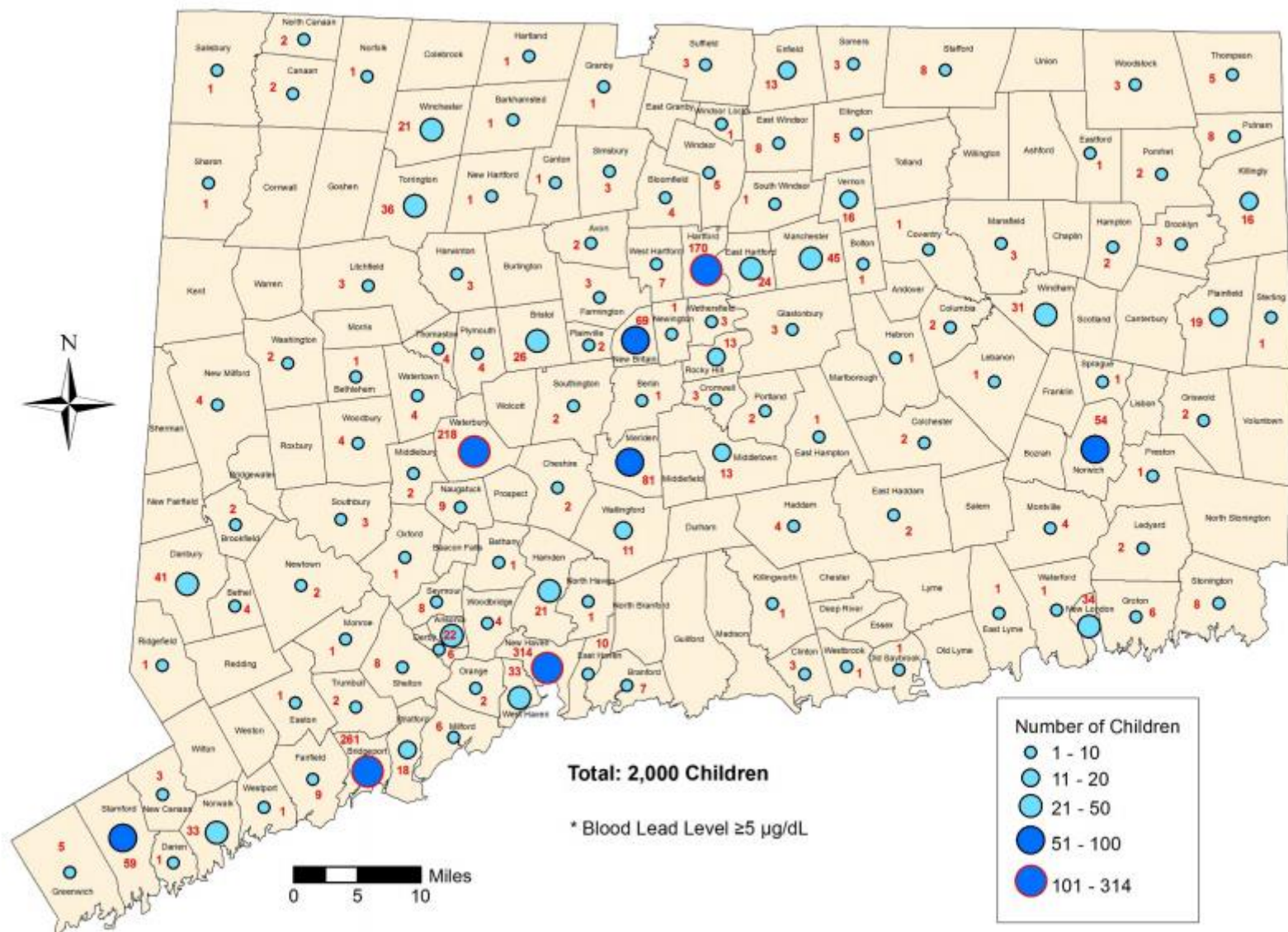
30% of the 430,000 income eligible homes for CT's residential energy efficiency programs are deferred due to health and safety hazards

Per Capita Asthma-Related Hospitalizations and ED Visits



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 Age 6 by Town, CT 2016



The Vision:

**Connecticut Green & Healthy
Homes Project**

Connecticut Green & Healthy Homes

Vision

“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.”

How?

Evidence-based housing interventions

- Address health and safety hazards and improve energy efficiency
- Supporting housing stability and affordability through lower energy burdens
- Supporting 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 all across the state

How We Get Here in Connecticut:

Project Goals

A Project Built On Cross Sector Partnerships

Housing investment improves quality of life for the families that we serve



Engaging stakeholders across energy, health and housing to advance the statewide collaborative

230+ people

134+ organizations

20+ presentations / briefings

1 of 5 innovative cross-cutting ideas chosen by the
administration

Project Goals over Three Phases

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

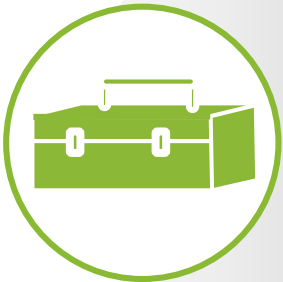
2019-2021

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

- 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.

CT Green and Healthy Homes Resources to Leverage

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



National leader in **energy-efficiency services & green financing** (20,000 units averaged per year).

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

Moving Forward Together:

Project Next Steps

Phase II: Conducting Economic Analysis of Medicaid Claims



Analyze health care utilization rates and associated costs



Project potential cost savings



Examine the incentives for reducing healthcare costs



Get partner input to guide and advance investment in healthy housing

Phase II: Project Design Workgroups

Five workgroups will convene from April – July 2019 to develop the pilot project design

1

Service Delivery Design

Design Connecticut specific integrated service delivery model for project's pilot phase

2

Service Provider Certifications – Workforce Development

Determine Community Health Worker, Energy Auditor, Contractor Certifications for project and workforce development capacity needs

3

Data & Evaluation

Develop data indicators and strategy for pilot evaluation

4

Payment Mechanism




Structure sustainable payment mechanism for statewide healthy homes program reimbursement

5


Service Delivery - Business Model Contracting

Determine pilot locations based on select criteria for energy efficiency and healthy homes model; Conduct service provider selection and complete pilot contracting

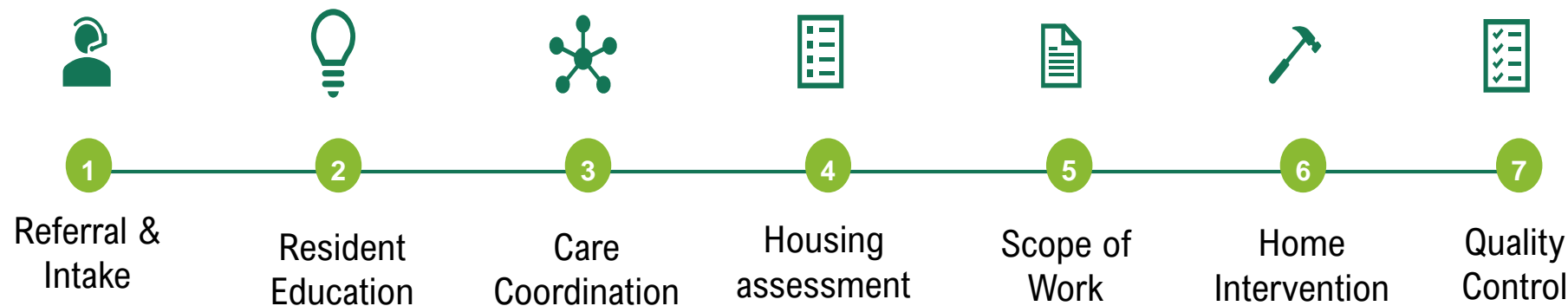
Target Population Initial Eligibility and Referral Source

| Target Population | 1 Medicaid | 2 Health Event / Testing | 3 Identified as Eligible By |
|--|-------------------|--|--|
|  Asthma | Medicaid Eligible | <ul style="list-style-type: none"> Asthma Control Score < 19 (indicative of poorly controlled asthma) > 1 ED visit or hospitalization or unscheduled medical visit in the last 6 months due to asthma | <ul style="list-style-type: none"> Healthcare Provider Medicaid claims |
|  Lead | | <ul style="list-style-type: none"> EBL child under 6 (≥ 5 $\mu\text{g/dl}$, venous) | <ul style="list-style-type: none"> Healthcare Provider Local health department |
|  Older Adult - Falls | | <ul style="list-style-type: none"> Prior fall (ED or hospitalization) Identified as at-risk for fall by PCP Identified as at risk by local health dept. fall prevention program, VNA or Protective Services for Elders, CT Home Care Program* | <ul style="list-style-type: none"> Medicaid claims Primary care provider / acute rehab Fall prevention programs CT Home Care Program |

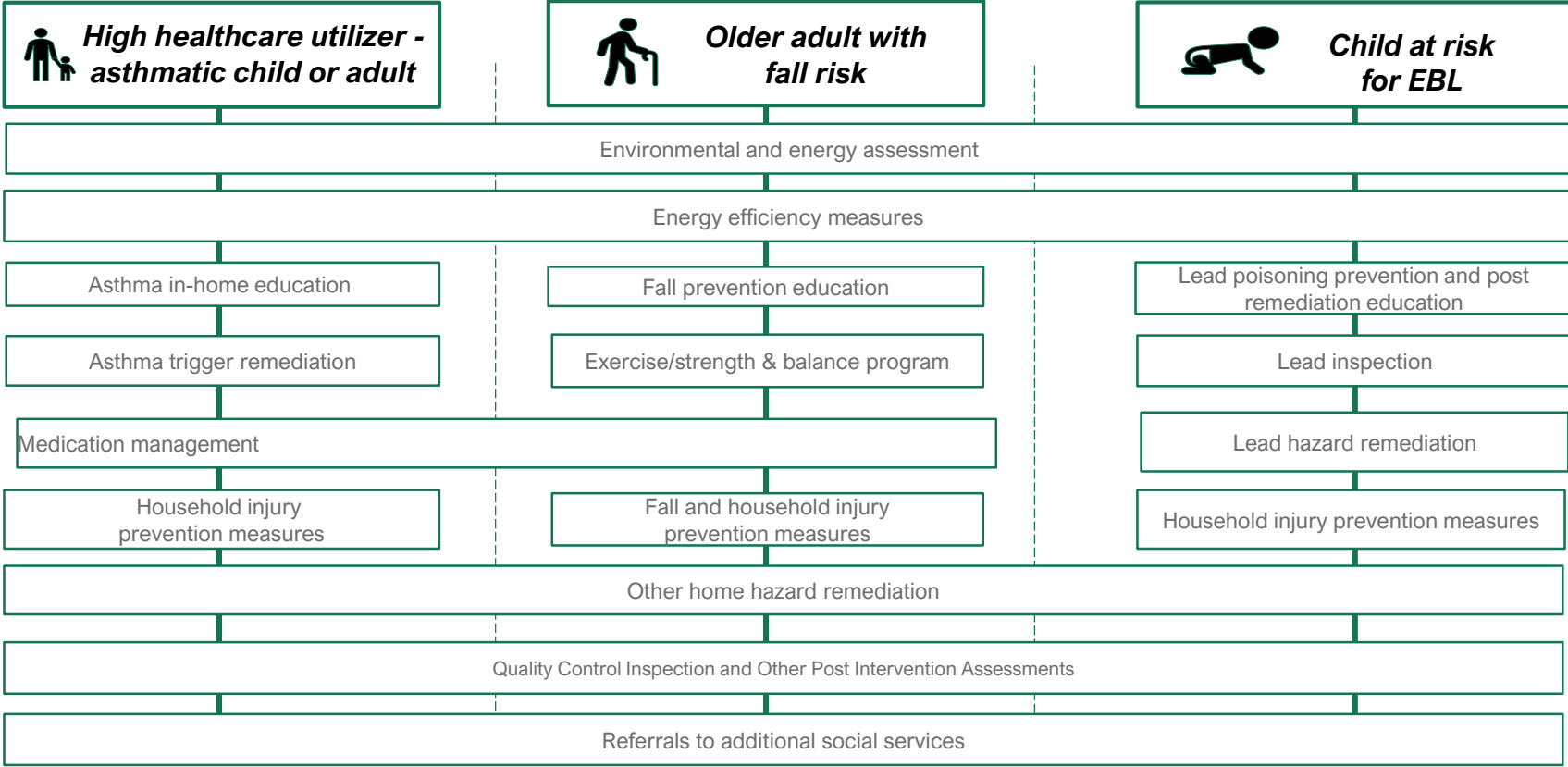
Additional Referral Sources for Expansion

| Target Population | Identified By | Medicaid | Intake/Assessment |
|---------------------------------------|--|--|--|
| Existing Energy Efficiency Applicants | Energy efficiency programs | | |
| Other | 211 Fire departments School Nurses Senior Centers LIHEAP (Bill pay assistance) CDFIs Other community organizations Other housing services providers Self-referrals HCVP / PHA | Confirm Medicaid eligibility as part of intake | Target population criteria identified as part of intake or assessment  |

Service Delivery Model

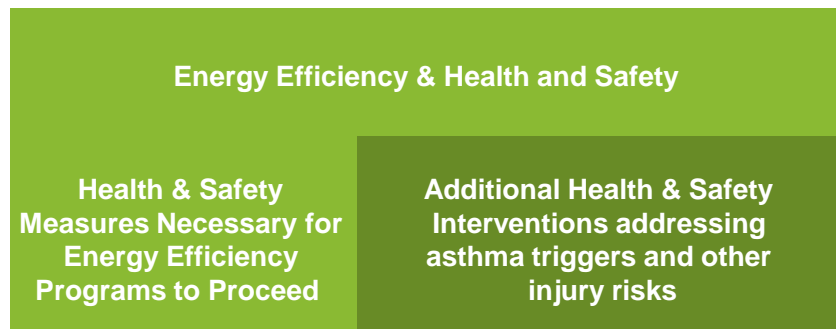


Services by Target Population



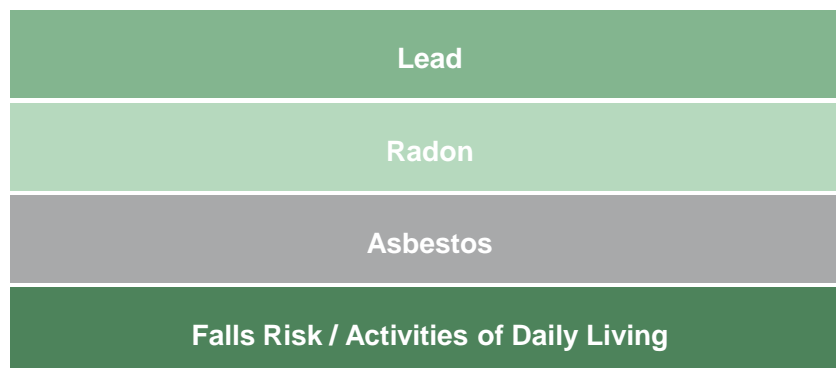
Home Assessment Vision

Combined Energy and Environmental Assessment



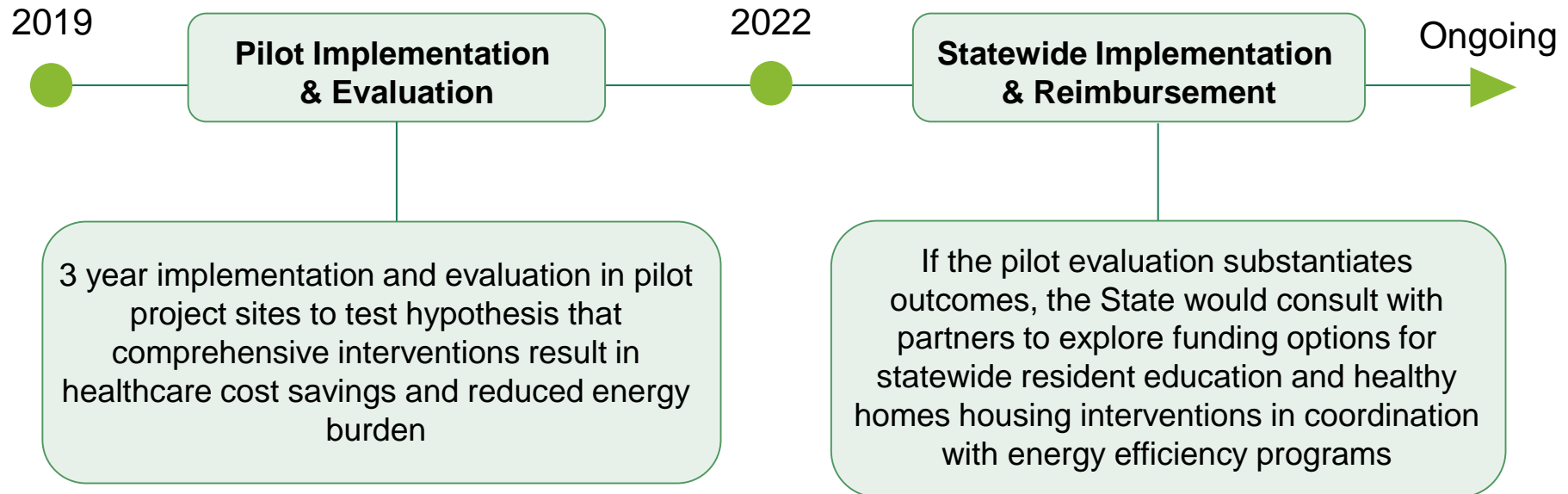
The goal is to extend the current energy assessment to include an enhanced environmental assessment for additional health and safety measures that address asthma and injury.

Individual Follow Up Assessments/ Inspections as Warranted



Specialty assessors would then address particular issues where applicable.

Phase III: Pilot Implementation – Proving Out the Model



Discussion

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Additional Resources

Project Website

<https://ctgreenbank.com/ct-ghhi/>

Video testimonials on the connection between health, housing, and energy

<http://aceee.org/topics/health-environment>

CT Legislative briefing with Department Commissioners

<http://ct-n.com/CTNplayer.asp?livestream=0>