Welcome to the LIFE Webinar Series

We will begin the webinar momentarily
LIFE Webinar Series

Protecting the Health of Vulnerable Populations with In-Home Energy Efficiency

Sara Hayes, American Council for an Energy-Efficient Economy

December 18, 2019
1:30 p.m. – 2:30 p.m. ET
Mission Statement

Working to help low-income New Yorkers address energy issues.

LIFE, the Low-Income Forum on Energy, is a unique statewide dialogue that brings together organizations and individuals committed to addressing the challenges and opportunities facing low-income New Yorkers as they seek safe, affordable and reliable energy.

Supported by the New York State Public Service Commission and the New York State Energy Research and Development Authority (NYSERDA), the LIFE dialogue encourages an interactive exchange of information and collaboration among the programs and resources that assist low-income energy consumers.
Webinar Series, Newsletter, Social Media

> Monthly webinars
  • January date TBD
    *Energy Justice: Principles and Practice*, Raya Salter, Imagine Power, LLC
  • Register at nyserda.ny.gov/LIFE-Webinar-Series

> Monthly electronic newsletter
  • Sign up at nyserda.ny.gov/LIFE – “Join the email list”

> Social media
  • Twitter: @LIFEnys
  • LinkedIn: Low-Income Forum on Energy
Connect

> Find more information on the website
  • nyserda.ny.gov/LIFE

> Join the mailing list for announcements and updates
  • Sign up at nyserda.ny.gov/LIFE-mailing-list

> Contact LIFE
  • Phone: 866-697-3732 – Request “Low-Income Forum on Energy”
  • Email: LIFE@nyserda.ny.gov
Upcoming Event

LIFE 2020 Statewide Conference
May 19-20, 2020
Albany, NY
nyserda.ny.gov/LIFE-mailing-list
Asking Questions During Today’s Webinar

- Click on the small arrow to the left of Q&A to open the text field.
- Type your question into the text field and click “send.”
Technical Difficulties or Contacting the Host

> Click on the “Chat icon on the bottom menu to activate the chat function.

> The chat function will appear in the middle right portion of your screen.
Protecting the Health of Vulnerable Populations with In-Home Energy Efficiency: A Survey of Methods for Demonstrating Health Outcomes

December 18, 2019
American Council for an Energy-Efficient Economy
Sara Hayes
The American Council for an Energy-Efficient Economy is a nonprofit 501(c)(3) founded in 1980. We act as a catalyst to advance energy efficiency policies, programs, technologies, investments, & behaviors.

Our research explores economic impacts, financing options, behavior changes, program design, and utility planning, as well as US national, state, & local policy.

Our work is made possible by foundation funding, contracts, government grants, and conference revenue.
What I’ll Cover

1. What is the value of demonstrating health impacts from energy saving programs?

2. How do in-home energy efficiency programs protect health?

3. How do we know if an energy saving program is achieving health benefits?
What is the value of demonstrating health impacts from these programs?
Use cases for demonstrating health outcomes

- Account for participant health impacts in cost-effectiveness tests
- Increase participation through marketing
- Target programs to households most in need
- Attract interest and build cross-sector partnerships with health care partners
- Unlock additional funding
- Reduce deferral rates
Health care providers and families facing chronic illnesses will use EE as a tool to mitigate symptoms and improve public health.

Utility regulators, health care providers, and policymakers will braid resources and increase funding available to EE programs, which will result in expanded services in vulnerable communities, maximizing the impact of limited resources.

Strong evidence presented by persuasive and influential messengers about the health benefits of EE will help persuade policymakers in states and cities to adopt new EE policies and programs and expand existing ones.

Outcomes

- Health care providers and families facing chronic illnesses will use EE as a tool to mitigate symptoms and improve public health.
- Utility regulators, health care providers, and policymakers will braid resources and increase funding available to EE programs, which will result in expanded services in vulnerable communities, maximizing the impact of limited resources.
- Strong evidence presented by persuasive and influential messengers about the health benefits of EE will help persuade policymakers in states and cities to adopt new EE policies and programs and expand existing ones.

The Problem

Economically vulnerable communities, people of color, infants and children, older adults, and pregnant women disproportionately suffer from a variety of health harms exacerbated by their living conditions. Global climate change will worsen these conditions.

A Solution

An existing nationwide network of energy efficiency (EE) programs can be used as an in-home preventive health care strategy to address social determinants of health, mitigate the health effects of climate change, and make people’s homes healthier and safer.

- Triggers of asthma and other respiratory diseases
- Indoor air pollution
- Environmental toxins
- Extreme temperatures
- Inadequate housing conditions
- Trip and fall hazards
- Radon, fire, and carbon monoxide detection

What’s Needed

- Identification of EE program interventions that have the greatest impact on health
- Persuasive evidence that program interventions are achieving health benefits
- Evidence that families who most need these services will see benefits
- Partnerships between key decision makers bridging the energy and health care sectors
- Mechanisms to braid, blend, and/or layer funding streams allocated to EE programs with dollars allocated for improving public health
How do in-home energy efficiency programs protect health?
IEA Global Energy Outlook Emissions Scenario

Source: http://aceee.org/research-report/u1604
Power Plant Equivalents Avoided from Energy Efficiency

Reduction of annual CO₂ emissions by 490 million tons in 2015

Historical savings from energy efficiency policies

Potential savings from increased energy efficiency policies

Source: http://aceee.org/research-report/u1604
Energy efficiency protects the environment

- **Coal ash pollution** contains toxic heavy metals such as arsenic and lead.
- **Power plant pollution** includes NOx, SOx, mercury, and CO2.
- **Fossil fuel combustion** produces harmful particulates, as well as NOx, SOx, and CO2.
- **Heated water discharge** pollutes waterways and harms aquatic life.
- **Oil spills, groundwater pollution, and earthquakes** from drilling and mining harm wildlife.
- **Industrial pollution** includes toxic chemicals that poison air, water, and land.

Reducing energy waste cuts out pollution.
Save Energy. Protect Health.

Reducing annual electricity use by 15% with ENERGY EFFICIENCY would reduce air pollution, and...

+ Save more than SIX LIVES every day

+ Prevent nearly 30,000 ASTHMA EPISODES each year

+ Save Americans up to $20 BILLION in avoided health harms annually

Source: http://aceee.org/research-report/h1801
Multiple Benefits of Energy Efficiency

- Protect health
- Improve safety and comfort
- Save money
- Create jobs and opportunity
- Protect the environment
EE Health Benefits for Building Occupants

Common health stressors in homes include:
- Chemical: Formaldehyde, Carbon Monoxide, Other VOCs, Particulates, Radon
- Physical: Humidity, Condensation, Extreme Heat, Extreme Cold
- Biological: Dust & Allergens, Mold, Pests, Bacterial agents

Weatherization measures help to:
- Filter and Circulate Air
- Regulate Indoor Moisture and Temperature
- Strengthen Barriers to Outdoor Triggers

This reduces or prevents health issues like:
- Asthma attacks
- COPD
- Bronchitis
- Nasal allergies
- Colds, rhinitis
- Headaches
- Heart disease
- Hypertension
- Sinusitis
- Fatigue
- Anxiety & stress
- Other mental illness
- Lung cancer

And leads to:
- Reduced financial burden and stress from energy and medical bills
- Fewer ER trips, physician visits, and premature deaths
- Fewer days of school or work lost
- Improved comfort and safety
Big Opportunities – in terms of dollar savings

- Asthma
- Trip and fall
- Thermal stress

ACEEE estimates billions of dollars in health care costs could be avoided by addressing these issues through the existing national network of weatherization programs.
Health in the Built Environment is an Equity Issue

• Over 50% of the US building stock is more than 35 years old

• Low-income populations and people of color live in homes with inadequate housing conditions at disproportionately high rates

• Many of the chronic diseases exacerbated by inadequate housing conditions disproportionately fall on low-income populations and people of color

• Children experience asthma at higher rates than adults

• 40% of asthma risk in children is associated with home exposures (e.g., moisture, temperature variations, pests)
A word about ‘Energy Burden’

Energy burden is a household’s energy spending (electricity, gas, and/or other heating fuel) as a percentage of total household income.

![Energy burden of select groups by region, ordered from highest to lowest based on the average of the median energy burdens across all groups.]

This affect’s a household’s ability to afford quality housing or pay for food and medicine. Having limited funds for a healthy diet, health care, and a comfortable home also increases the risk of chronic disease for struggling individuals and families.


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/
How do we know if an energy saving program is achieving health benefits?
Methods of data collection from a review of 63 weatherization plus health programs

Indicators used to document health outcomes

- Human health and wellness
  - Days of school missed
  - Days of worked missed
  - Hospital admissions
  - Emergency room visits
  - Visits to the doctor
  - Calls to the doctor
  - Asthma symptoms
  - Uncontrolled asthma
  - Other respiratory illness
  - Comfort

- Indoor environmental quality
  - Tobacco smoke
  - Rodents
  - Cockroaches/insects
  - Pet dander
  - Water drippage/condensation/dampness
  - Mold
  - VOCs
  - Radon
  - Temperature
  - Humidity
  - Carbon dioxide/ventilation rates
  - Carbon monoxide
  - Particulate matter

Number of programs reporting indicators within these categories
Human health and wellness indicators

- Asthma symptoms/uncontrolled asthma: 22
- Comfort: 19
- Trips to emergency department: 15
- Other respiratory illnesses: 15
- Days of school missed: 12
- Hospital admissions: 12
- Visits to doctor: 11
- Days of work missed: 10
- Calls to doctor: 7

Number of times outcome was reported
Indoor environmental quality indicators

- Carbon dioxide/ventilation rates: 19
- Cockroaches/insects: 16
- Rodents: 14
- Water drippage/condensation/dampness: 14
- Smoke: 13
- Mold: 13
- Temperature: 11
- Particulate matter: 11
- Humidity: 10
- Volatile organic compounds: 8
- Carbon monoxide: 8
- Pet dander: 5
- Radon: 5

Number of times indicator was reported
Some recommendations for programs

• **Conduct a pre-intervention or baseline assessment**
  • Programs can borrow from existing examples to design a baseline assessment of the home and/or occupant health. See aceee.org/research-report/h1901 for an example of a pre-assessment survey issued through a cooperative effort of federal agencies.

• **Conduct a post-intervention assessment**
  • A low-cost approach might include a questionnaire or survey. Simple surveys can be created or adopted from other programs or agencies. See aceee.org/research-report/h1901 for a post-assessment survey used to evaluate a program run by the Tennessee Valley Authority.

• **Collect multiple indicators that align with program goals**
  • Identifying a purpose for tracking health outcomes can help determine the best methods and appropriate level of rigor for collecting and handling the data.

• **Collect indicators that directly measure human health and wellness**
  • Documenting actual changes in the health of program participants is one of the clearest ways to demonstrate a program’s health impact (in contrast to inferring or predicting health impacts).
  • Can be employed at a relatively low cost.
2020 Conference on Health, Environment, and Energy

Hyatt Centric French Quarter
New Orleans, LA
January 21, 2020 to January 23, 2020

*Registration rate goes up $125 tomorrow!* 

Register: https://aceee.org/conferences/2020/chee
Opportunities to engage and learn more

• Join the Working Group
  -Focus is on bridging the health and energy efficiency sectors with the goal of strengthening partnerships and facilitating peer exchange between these sectors. See link above for more info.

• Attend the Conference
  -Conference on Health, Environment, and Energy this January 22-23 in New Orleans: https://aceee.org/conferences/2020/chee

• Earn a professional credential
  -Pre-conference Workshop - The Building Performance Institute Healthy House Principles (HHP) Certification
  Register here: https://aceee.org/conferences/2020/chee

• Request Technical Assistance
  -We provide technical assistance to advocates and program administrators in states and cities to assist with policy analysis and program design
Opportunities to engage and learn more

- **Learn from New Research**
  - 2020 upcoming publications:
    - Opportunities to braid/blend/layer health dollars with EE dollars for program funding
    - Methods for quantifying the dollar value of health impacts due to EE programs

- **Make Use of Existing Resources**
  - Videos to help communicate the health impacts of EE on building occupants
  - Data on potential dollar savings from EE due to avoided health harms
  - Exemplary programs targeting health and energy savings
  - EE as a tool to comply with environmental regulations
  
  All available here: [https://aceee.org/topics/health-environment](https://aceee.org/topics/health-environment)
• KEYNOTE ADDRESS - Climate Change: A Public Health Approach

• NEW Center for Climate, Health and Equity
  More info: https://apha.org/topics-and-issues/climate-change/center
Related ACEEE Resources

• Health and Environment Program homepage (and videos) - [http://aceee.org/topics/health-environment](http://aceee.org/topics/health-environment)


• The Next Nexus: Exemplary Programs that Save Energy and Improve Health – [http://aceee.org/research-report/h1802](http://aceee.org/research-report/h1802)


• Cost-Effectiveness Tests: Overview of State Approaches to Account for Health and Environmental Benefits of Energy Efficiency - [https://aceee.org/topic-brief/he-in-ce-testing](https://aceee.org/topic-brief/he-in-ce-testing)
Energy Efficiency Makes People’s Homes Healthier - Other resources


Thank You!

Sara Hayes
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Join Us

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