



Quantifying the Dollar Value of Health Benefits for Building Occupants

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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.



Topics to cover

- Health in the built environment
- Energy efficiency (EE) health benefits for building occupants
- Tracking health outcomes
- Monetizing health outcomes
- Concluding thoughts

Multiple Benefits of Energy Efficiency



Protect health



Improve safety
and comfort



Save money



Create jobs and
opportunity



Protect the
environment

Health in the Built Environment

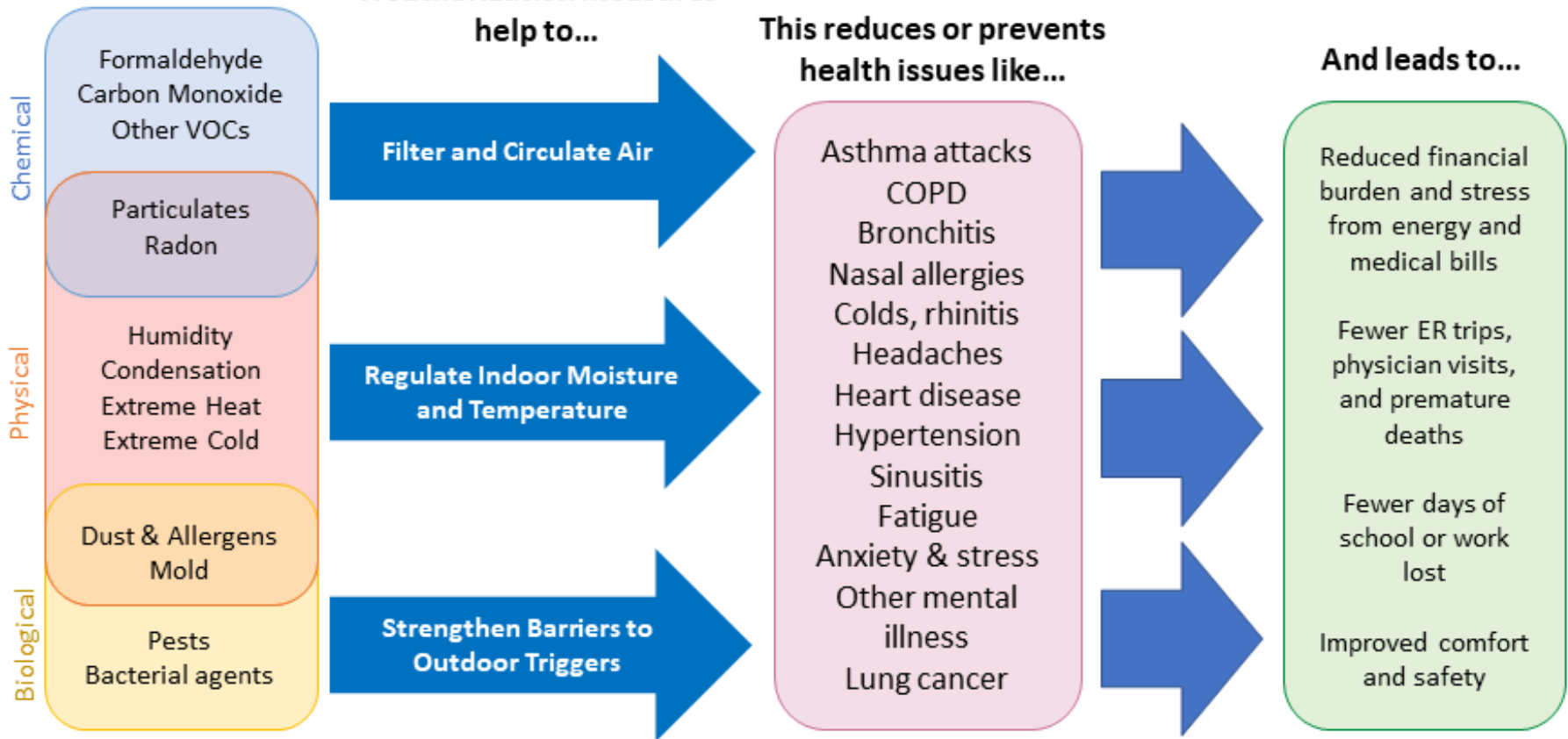
- Over 50% of the US building stock is more than 35 years old
- Low-income populations and people of color live in homes with inadequate housing conditions at disproportionately high rates
- Many of the chronic diseases exacerbated by inadequate housing conditions disproportionately fall on low-income 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)



Source: ACEEE <https://aceee.org/topics/health-environment>

EE Health Benefits for Building Occupants

Common health stressors in homes include...



Measure and Monetize Health Benefits

- Account for participant health impacts in cost-effectiveness tests
- Reduce deferral rates
- 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

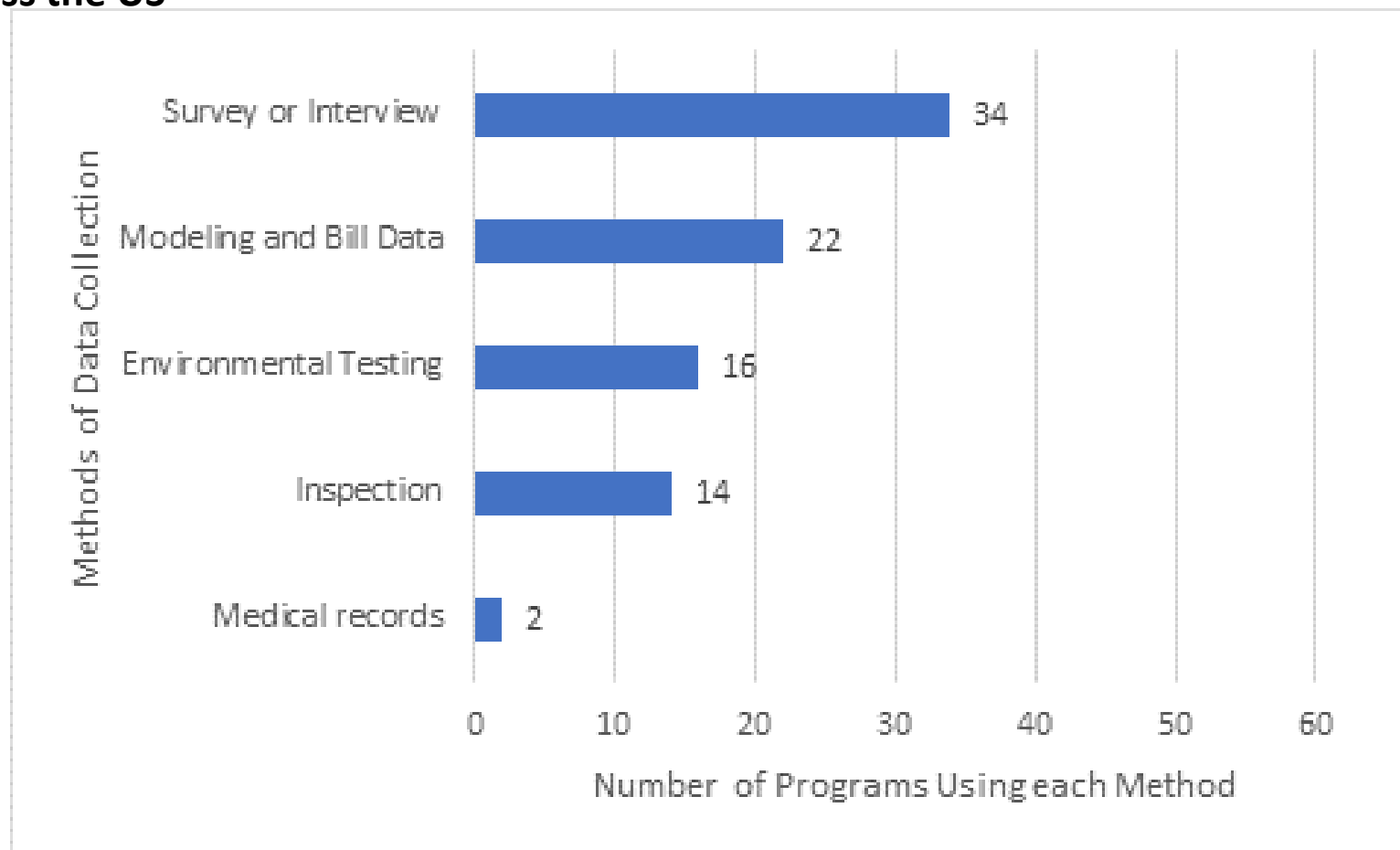
Tracking Health Outcomes

Methods:

- Reviewing medical records
- Conducting a survey or interview
- Visual inspection
- Environmental testing
- Modeling and estimating health outcomes for participants

Findings from ACEEE Analysis

Methods of data collection from a review of 63 weatherization plus health programs across the US



Source: ACEEE, "Protecting the Health of Vulnerable Populations with In-Home Energy Efficiency: A Survey of Methods for Demonstrating Health Outcomes"

Monetizing Health Outcomes

- Measurement methods and data collection form the basis of monetizing the health outcomes
- A variety of health outcomes can be monetized
 - e.g. reduced thermal stress, asthma symptoms, lost work days, trip and fall injuries, home fires, CO poisonings, etc.
- Several studies have calculated the value of health outcomes for participants of weatherization programs

Sample of Monetized Health Outcomes

Health Outcome	Total without avoided death benefit (first year benefits per weatherized unit)	Total with avoided death benefit (first year benefits per weatherized unit)	Source of \$ savings
Reduced asthma symptoms	\$202.00 - 332.00	\$202.00 - 332.00	Lower medical costs
Reduced cold-related thermal stress	\$17.28 - 38.20	\$35.64 - 854.56	Lower medical costs and avoided premature death
Reduced heat-related thermal stress	\$8.52 - 35.28	\$28.52 - 231.86	Lower medical costs and avoided premature death
Fewer missed days at work	\$20.25 - 186.81	\$20.25 - 186.81	Increased wealth due to fewer sick days/reduction in lost income

Source: Tonn, B., et al. 2014. Health and Household-Related Benefits Attributable to the Weatherization Assistance Program” https://weatherization.ornl.gov/wp-content/uploads/pdf/WAPRetroEvalFinalReports/ORNL_TM-2014_345.pdf; Three3 and NMR Group entitled, “Low Income Single Family Health and Safety Related Non Energy Impacts Study” <http://ma-eeac.org/wordpress/wp-content/uploads/Low-Income-Single-Family-Health-and-Safety-Related-Non-Energy-Impacts-Study.pdf>

Considerations for Monetizing Health Outcomes

- Data collection
 - Primary and secondary sources
 - Accessibility
- Methodology
 - Varying degrees of rigor
- Look to other states, examples include:
 - States incorporating health in cost-effectiveness tests
 - Efficiency Vermont Healthy Homes Initiative
 - New York State Healthy Homes Pilot Program

Concluding Thoughts

- Energy efficiency can provide positive health outcomes for program participants
- There are a variety of methods to track health outcomes
- Understanding health outcomes can help to expand program reach, attract new partners, and unlock health funding streams
- Looking to other states can provide examples of a path forward



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Thank you

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