

# EWI Low Income Workgroup

September 2, 2021



# Agenda

Welcome, Introductions  
Brad Banks, MPSC

*Updates to the Weatherization Assistance Program*  
Maddy Kamalay  
Weatherization Specialist  
Bureau of Community Action and Economic Opportunity  
Michigan Department of Health and Human Services

*Ramping Up a Study to Assess the Health Benefits of  
Weatherization in Detroit, Memphis, and Milwaukee*  
Carina Gronlund  
Research Assistant Professor  
University of Michigan

*Overview of the MDHHS Social Determinants of Health  
(SDoH) Roadmap*  
Ninah Sasy  
Director, Policy and Planning  
Michigan Department of Health and Human Services

Close and Adjourn

# WEATHERIZATION ASSISTANCE PROGRAM POTENTIAL PROGRAM GROWTH

SEPTEMBER 2, 2021



# POTENTIAL ARPA PROGRAMS

- American Rescue Plan Act of 2021
  - ARP funds have been released to states
  - The State of Michigan is currently determining the best way to administer these funds
  - BCAEO anticipates some ARP funding coming to the Weatherization network for plumbing and minor home repair
  - Total funding is not clear, but will be planned to be spent in FY22

## POTENTIAL LIHEAP INCREASE

- As part of ARP funding, states received a one time supplemental LIHEAP funding increase (\$4.5 billion nationally, \$239,052,013 in Michigan) to be spent by the end of FY22 (September 30, 2022)
- These funds may go toward any typical use of LIHEAP funds
- BCAEO anticipates a one time increase to our usual base LIHEAP allocation from these funds for Weatherization purposes
- Total funding for Weatherization is not confirmed
- Estimated amount: \$5 million

## POTENTIAL DEFERRAL REDUCTION GENERAL FUND

- During the past year, budget talks included general funds to go toward deferral reduction
- These funds were being advocated for to fill the gaps that exist between allowability in federally funded energy efficiency and home repair programs, such as Weatherization
- This funding was not included in this year's budget
  - It is still being discussed for potential use in future years
  - Estimated amount: \$5 million

## POTENTIAL DOE STIMULUS

- The Bipartisan Infrastructure Framework (BIF) contains \$3.5 billion for a Weatherization stimulus
- These funds would be on top of the annual appropriate of ~\$310 million
- Become available in FY22 or 23
- They would be spent over an unspecified timeframe
  - Available until spent
- BIF has passed in the Senate, is supported by the President, and will be voted on in the House by 9/27

# POTENTIAL DOE STIMULUS – QUICK MATH

- Annual appropriation – \$310 million federally
  - Michigan – \$19,093,962
- Proposed additional stimulus – \$3.5 billion federally
  - Estimated proportionate total for Michigan – \$215,576,990
- Estimates/approximations
  - ~12x greater than annual appropriation
  - If spent over 3 years, ~4x annual appropriation each year
  - In addition to annual appropriation
  - Program could expand by ~5x during stimulus



# POTENTIAL DOE STIMULUS

- The stimulus would show major expansion in the WAP
- Preparation includes
  - Multifamily work expansion
  - Onboarding and training new auditors and inspectors
  - Outreach and training to new contractors
  - Outreach to potential clients
  - Potential expansion of Weatherization Operator network

## LINKS FOR POTENTIAL FUNDS

- MiBiz – Whitmer's COVID-19 relief spending plan includes tens of millions of dollars for clean energy
- ACF – FY 2021 Supplemental LIHEAP Funding Release under the American Rescue Plan Act of 2021
- CNBC – House Democrats clear path toward passing \$3.5 trillion budget bill and infrastructure plan after breaking stalemate

# Ramping Up the Weatherization and Health Effects (WHE?) Study

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PRESENTATION SEPTEMBER 2, 2021

CARINA GRONLUND, PHD, MPH

UNIVERSITY OF MICHIGAN INSTITUTE FOR SOCIAL RESEARCH

SOCIAL ENVIRONMENT AND HEALTH PROGRAM

# Current Partners

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Tennessee: University of Tennessee/ThreeCubed (Bruce Tonn), TVA

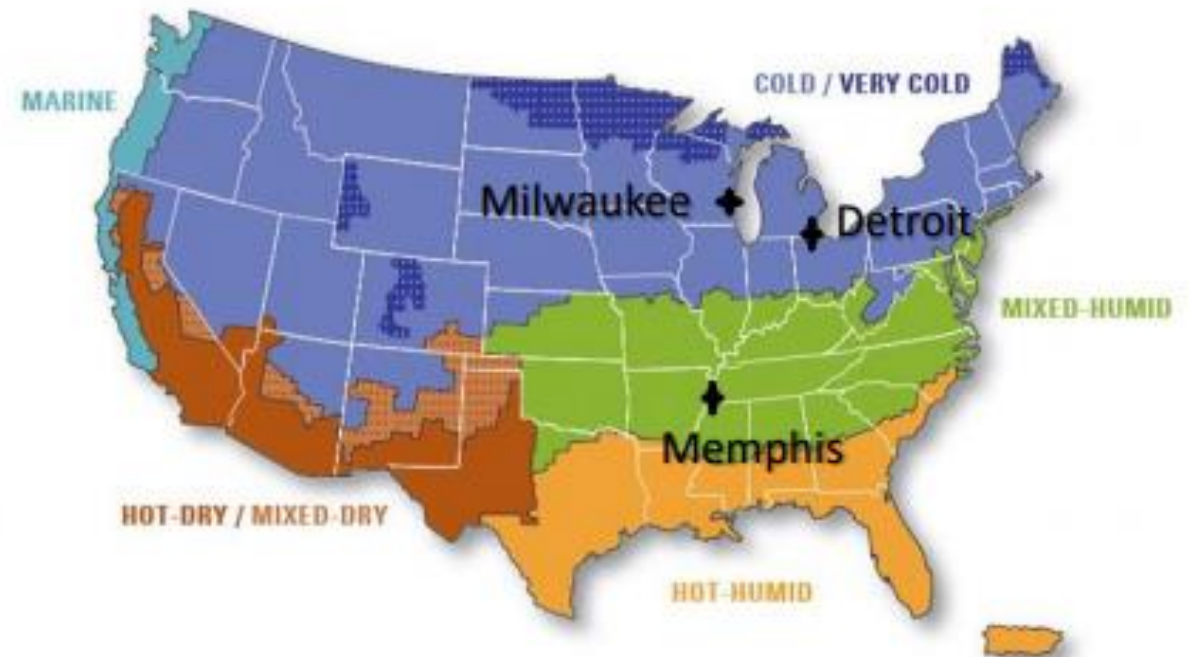
Wisconsin: Slipstream, Inc. (indoor environment monitoring expert Scott Pigg) and State of Wisconsin Weatherization Program

Michigan: MDHHS, EcoWorks, and “Climate Hazards, Housing, and Health Steering Committee” community partners

Emory University sleep specialist Dayna Johnson

Gerontologist, indoor air, psychology, and policy research experts at UM

- Philippa Clarke, Marie O’Neill, Tony Reames, Ketlyne Sol, Maggie Hicken



Enrollment Sites

# Problem

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weatherization may have substantial, and some as of yet unmeasured, benefits to health

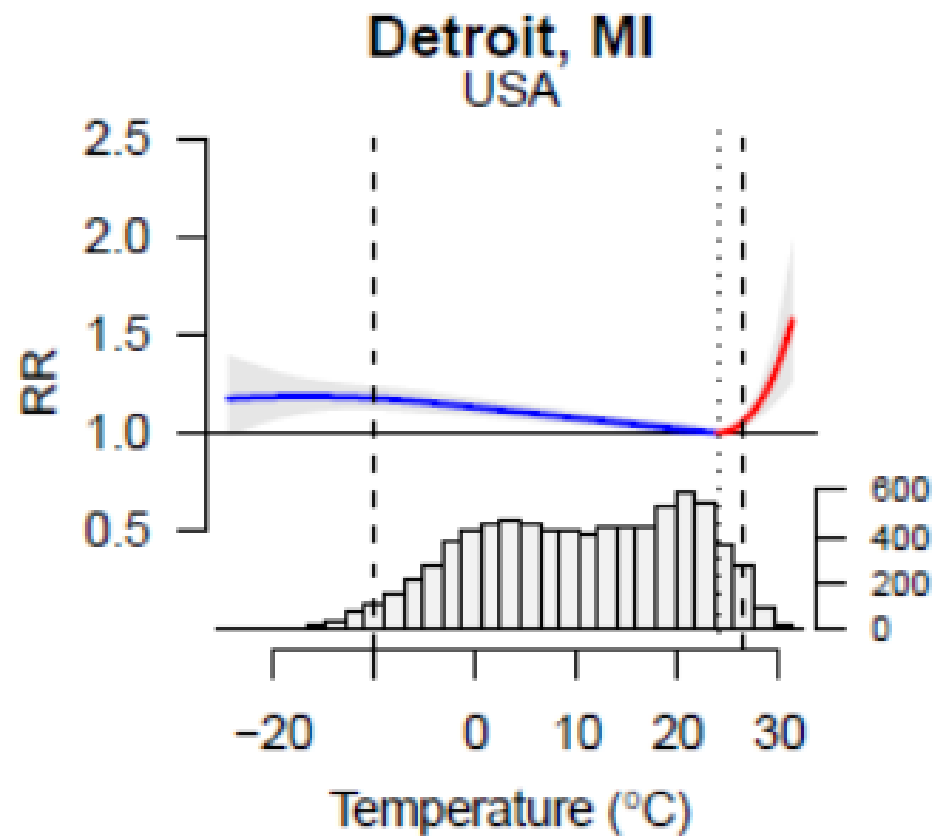
weatherization funding narrowly limited to homes in otherwise good condition and to an amount per home related to utility savings

implications for both weatherization and healthcare subsidies

previous weatherization and health research hasn't always made it into the peer-reviewed literature, which informs healthcare spending and clinical advice

The burden of heat- and cold-associated morbidity and mortality is significant in the U.S.

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Gasparrini et al. Lancet. 2015.

# Energy Burden and the Study Cities

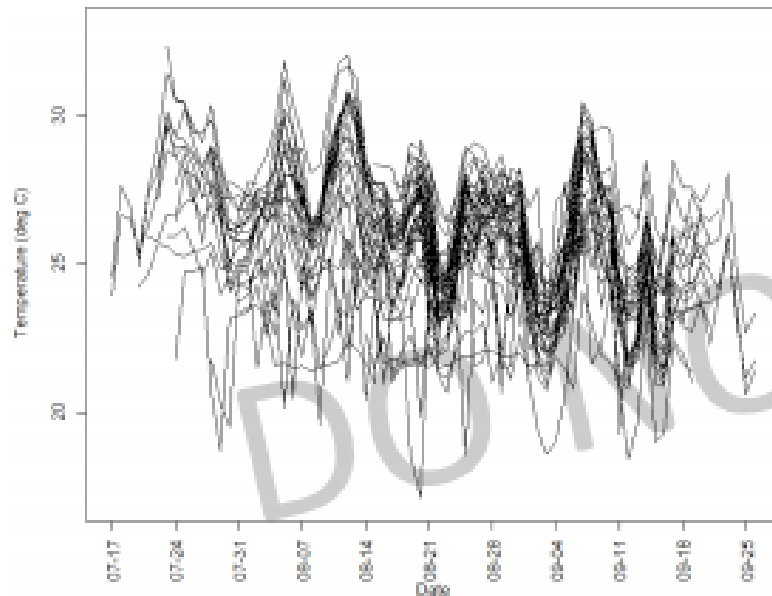
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**Table 1. Characteristics of study areas.**

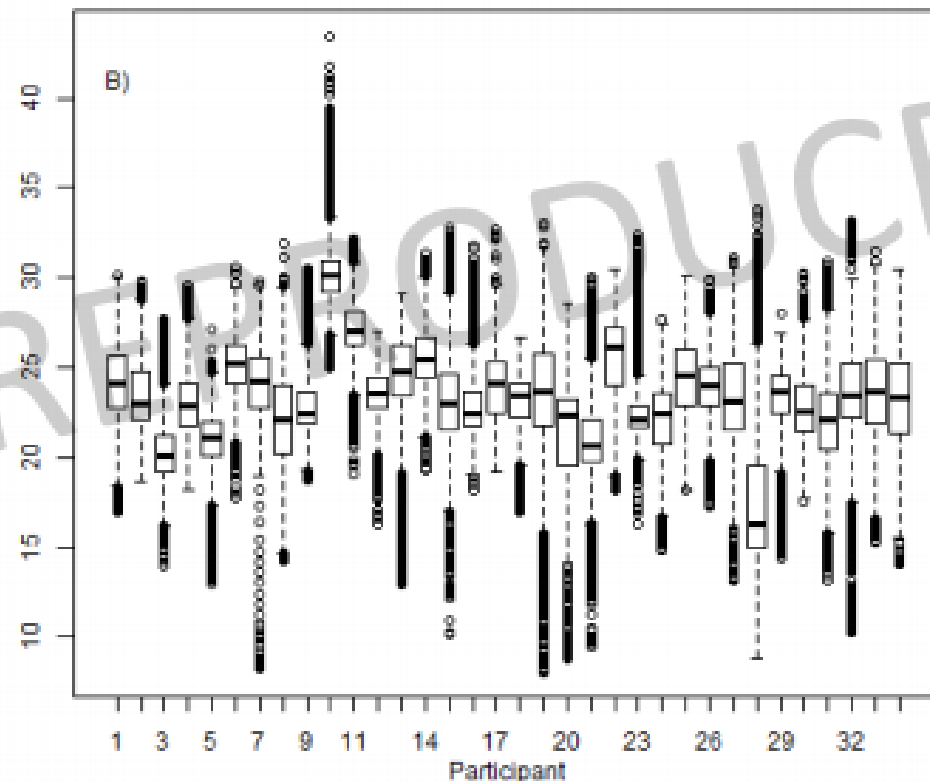
	Detroit, MI	Memphis, TN	Milwaukee, WI
Mean daily maximum temperature in July <sup>1</sup>	28.4 C	32.7 C	26.6 C
Mean daily minimum temperature in January <sup>1</sup>	-6.2 C	0.8 C	-8.6 C
% Black or African American alone or with other races <sup>2</sup>	80%	65%	41%
% Hispanic/Latino <sup>2</sup>	8%	7%	18%
% homes built before 1940 <sup>2</sup>	34%	8%	38%
% below poverty level <sup>2</sup>	38%	26%	27%

# Low-income households experience high indoor summer temperatures and cold indoor winter temperatures

In summer, 2016 in 45 Detroit homes. . .



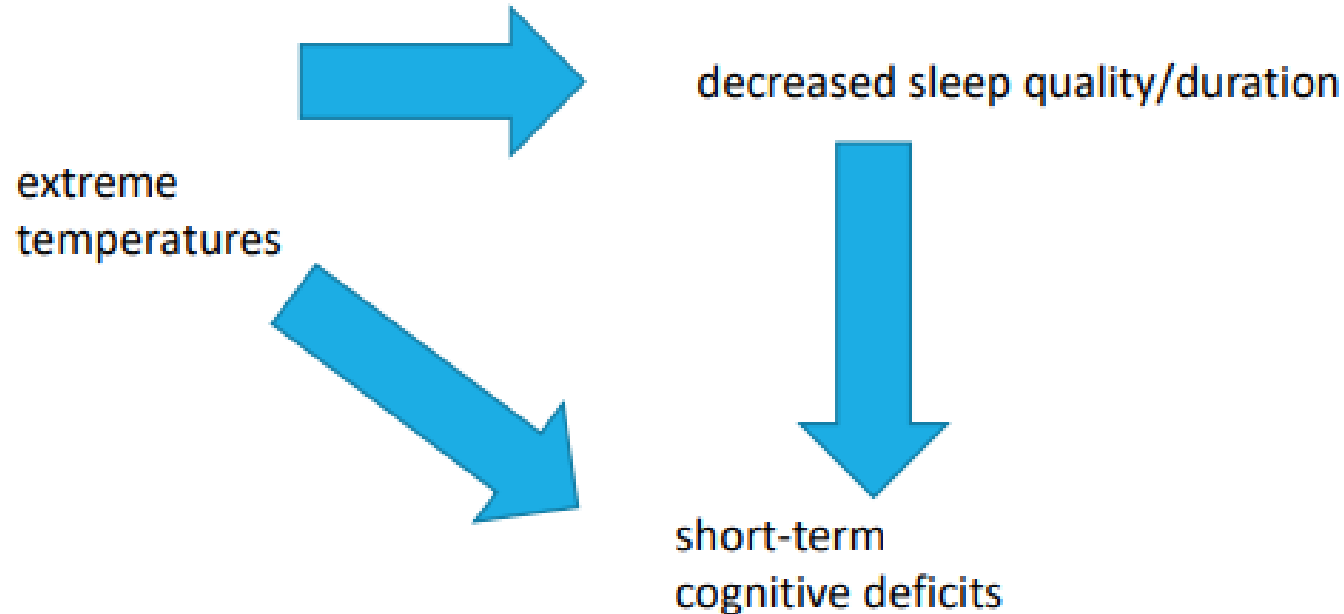
In August 2019-April 2020 in 34 Detroit homes. .





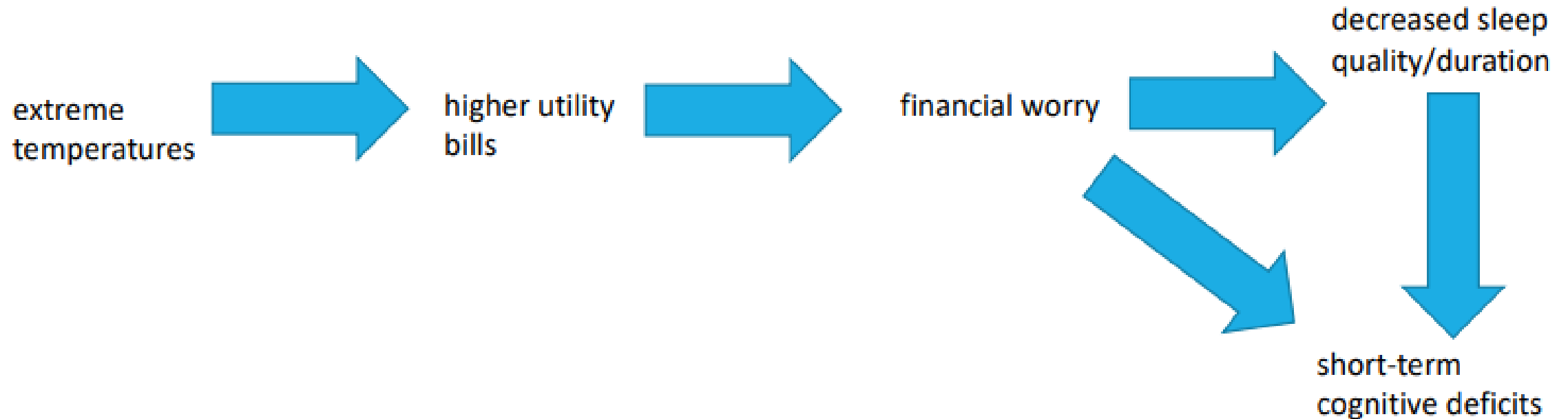
# Previous Research: Short-term cognitive changes, sleep and temperature

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# Previous Research: Chronic financial stress

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# Previous Research: Sleep and Financial Stress Affect Health

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In meta-analyses, short sleep duration has been conclusively linked to a 48% increased risk of incident coronary heart disease and 15% increased risk of stroke (Cappuccio et al. 2011).

Associations between psychosocial stress and incident cardiovascular disease are well accepted (Cohen et al. 2015).

Financial Stress and Coronary Heart Disease from the Jackson Heart Study: Participants with moderate to high (versus no) financial stress were 2.4 times more likely to have incident coronary heart disease events after controlling for demographics, SES, access to care, and traditional clinical risk factors

# Previous Research: Weatherization Health Benefits

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A review of 21 studies in the U.K., Australia, Canada, and New Zealand found improvements in respiratory symptoms and symptoms of other chronic illnesses, improved mental well-being, reduced medical visits, and fewer missed work days (Milner & Wilkinson 2016).

A randomized controlled trial of a heating intervention in New Zealand showed reductions in asthma symptoms among children (Howden-Chapman et al. 2008).

In the U.S., weatherization was linked with reduced asthma or allergy symptoms and reductions in psychological distress in adults (Tonn et al. 2018, Francisco et al. 2017, Breysse et al. 2014)

# Previous Research: Weatherization and Outdoor Air Pollution Reductions

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Gillingham et al. The climate and health benefits from intensive building energy efficiency improvements. Science Advances, 2021.

With 20% efficiency increases on all building appliances and equipment and 40 to 60% efficiency improvements from better shell materials in new and existing buildings, 2900 deaths per year in the U.S. could be avoided, even after accounting for *increased* levels of PM2.5 in the home due to reduced air exchange.

# Objectives and Hypotheses

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Overall: measure indoor temperature and humidity in homes in 3 cities receiving either low-cost “weatherization” (simple EcoWorks interventions including weatherstripping, window covers, etc.) or true weatherization (in Milwaukee and Memphis)

examine changes in indoor temperature and humidity pre- and post-weatherization

- hypotheses: indoor temperatures and humidity will improve following weatherization

examine changes in asthma and allergies pre- and post-weatherization

- hypotheses: asthma and allergy symptoms will decrease

examine cognitive, sleep, and financial worry changes (with repeated phone-based testing) as indoor temperatures change over 1 year

- hypotheses: short-term cognition will be better and sleep quality/quantity/daytime sleepiness will be better when temperatures are less extreme, and financial worry will decrease when utility bills are lower

do health impact assessment, assigning dollar values to air pollution improvements due to reduced utility usage (if any) and health improvements related to temperature using standard health cost measures

- hypothesis: community-level and individual-level estimates of health savings will be of policy significance

# Measures

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inexpensive indoor temperature and humidity monitor

in-person first visit and health survey

phone calls (or web-based survey) every month about health including cognition

week-long sleep measures (participant wears an actigraph on wrist) pre- and post-intervention

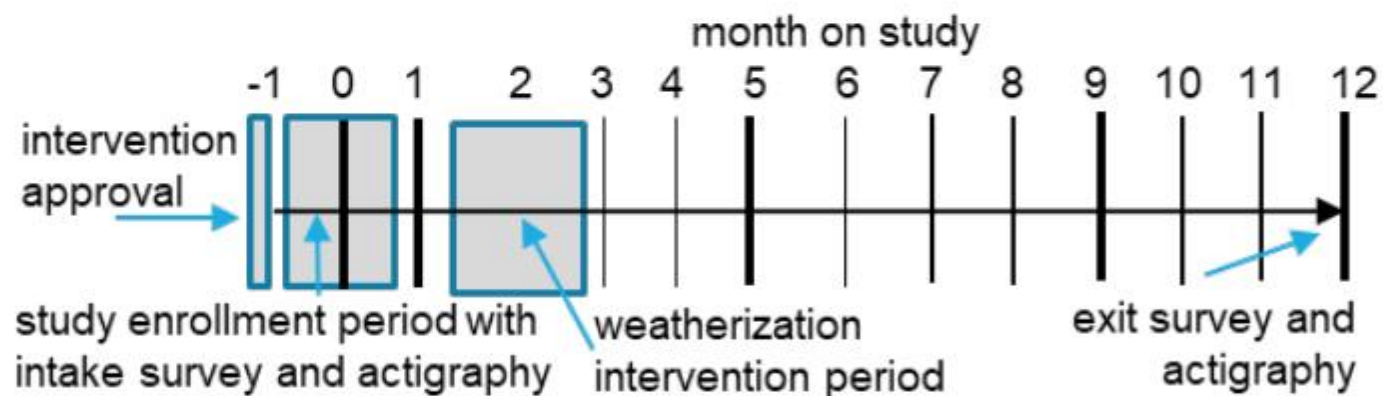
600 individuals over 3-4 years (~200 from each site)



# Study Schedule

## Survey Questions

- cognition, financial worry, sleepiness, sleep quality and duration
- subset of financial worry, sleepiness, sleep quality and duration





# Survey Questions—Asthma & Allergies

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## Asthma Control Test (ACT, Nathan 2004)

In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home/cause shortness of breath, wake you up, rescue inhaler. . .

In the past 12 months: number of visits to urgent care, emergency department, hospitalizations

## Rhinitis Control Assessment Tool (RCAT, Schatz 2010)

In the past week, nasal congestion, sneezing, watery eyes, sleep interference, avoided activities

# Survey Questions: Mold, Leak and Pest Questions

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From the American Housing Survey:

water leakages

mold

mice/rats

cockroaches

# Survey: Household Budget (from RECS)

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In the last year, how many months did your household **reduce or forego expenses for basic household necessities such as medicine or food to pay an energy bill?** (Almost every month, some months, 1 or 2 months, never)

Unsafe/unhealthy temperatures

Disconnect notices

Home energy assistance

Days without heating/cooling

Broken heating/cooling equipment, couldn't afford repair, stolen equipment

# Survey Questions: Heat and Cold and Health

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In the past five (one at exit survey) years, has anyone in the household, including you, developed a heat-related illness (headache, dizziness, nausea, vomiting, or fainting due to heat) while in this home?

In the last year, did anyone in your household need medical attention because your house was too cold?

In the last year, did anyone in your household need medical attention because your house was too hot?

# Survey Questions: Financial Worry (Short)

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Financial worry questions from the Weekly Stress Inventory (Moran 2019)

money for basics

unexpected bills

money for fun

What percentage of your financial stress is due to utility bills?

# Survey Questions: Financial Worry (medium)

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Adapted financial burden questions from the Health and Retirement Study (Wilkinson 2016)

- difficulty paying bills
- financial situation overall satisfaction

worry about paying utility bill and when the worry occurs

# Survey Questions: Household Environment

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fan and AC habits

comfort with opening windows

heating thermostat habits

# Survey Questions: House Questions

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1. What year was your home built?
2. How many bedrooms do you have?
3. How many stories are above ground?
4. About how tall are your ceilings?
5. What is the total square footage of the home (excluding the basement)?
6. What direction does your home face?
7. How many windows do you have?
8. About what percentage of the light bulbs in your home are LED or fluorescent bulbs?



# Weatherization Interventions

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Which of the following changes were made to your home by you or a contractor since you started receiving weatherization assistance?

air sealing, attic insulation, basement wall insulation, basement/crawlspace floor insulation, crawlspace wall insulation, exterior wall insulation, foundation wall insulation, floor insulation, duct sealing, duct insulation, ERV/HRV installation, boiler or furnace replacement, heat pump replacement or installation, central air conditioning replacement, room air conditioner replacement, refrigerator replacement, water heater replacement, window replacement

# Utility Costs

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Please go get your recent utility bills to answer the next questions.

What was the start date, end date, gas usage, and dollar amount of your most recent gas bill?  
Don't include carry-over from a previous bill.

What was the start date, end date, electricity usage, and amount of your most recent electricity bill?

# Survey Questions: Sleep

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from various existing sleep survey tools

Trouble failing asleep

trouble staying awake

sleep satisfaction

time spent sleeping

daytime sleepiness

# Survey Questions: Cognition

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Word recall

Digit span

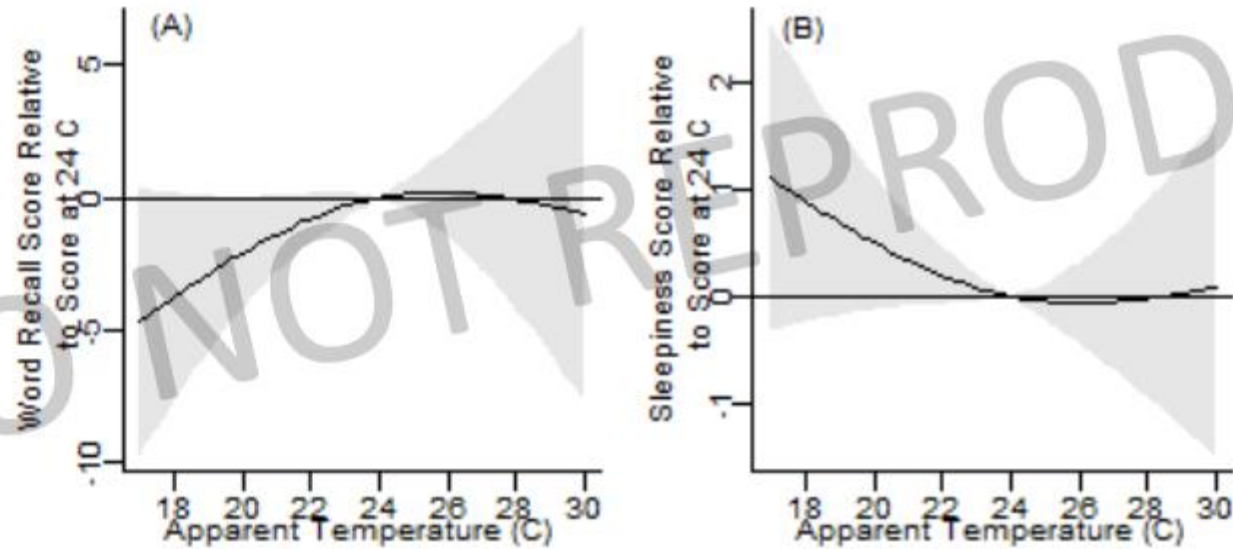
Backwards digit span

Delayed word recall

# Pilot Results

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Cumulative change in word list recall (WLL) score over 15 hours after hour of test (A) and change Epworth Sleepiness Scale score at hour of test (B) relative to 24 C.



# Close & Adjourn

Thank You!



Michigan Public Service Commission