Healthy Homes: Past, Present, and Future

Michigan Department of Community Health
Healthy Homes Section
Outline

• Healthy Homes University – A Brief History

• Methodology and Findings from 2005 -2008 Grant

• Healthy Homes University II
  2009 -2011 Evaluation Design

• Future of Healthy Homes
Why A Healthy Homes Program?

• Lead professionals targeted lead hazards

• Why not other environmental, safety and housing code violations?

• Holistic approach needed
Pioneers

- Recognized need & planted vision
- Notable individuals:
  - David Jacobs
  - Dennis Livingston
- Time was right
- Bold step beyond affordable housing
- Team ready for challenge
Healthy Homes Funding

• 2003 - HUD’s 1st funding of demonstration programs

• Programs required to:
  ▪ Address environmental and safety hazards
  ▪ Implement interventions
  ▪ Educate families
  ▪ Evaluate program
Success

• MDCH awarded in 2005

• Incorporated best practices

• Focus on asthma (measurable)
We Now Proudly Present:

“A Home Based Environmental Intervention and Education Program for Families with Pediatric Asthma in Michigan.”*

Overview of Program

Technical Approach:
- 3 year grant period
- 301 homes
- Two-tiered intervention
- 6-month program (including 4 home visits)

Basic Interventions:
- Every family receives assessment, products and follow-up visits

Custom Interventions:
- At least 40 families receive customized intervention products and services

Desired Outcomes:
- Positive change in knowledge, attitudes and behaviors of asthma triggers.
- Decrease in urgent medical visits and school absenteeism.
- Create sustainable program statewide
What is Asthma?

Asthma cannot be cured, but it can be controlled.

- Exposure to environmental asthma triggers
- Lack of control medication
- Early warning signs and symptoms
Recruitment of Participants

Do you have a child with asthma?

The Healthy Homes University program can help!

We can:
- Inspect your home and install products to reduce asthma triggers and prevent injuries.
- Provide information to help reduce asthma triggers in your home.

Who is eligible?
- Children less than 18 years old with asthma
- Low- or moderate-income households in:
  - Ingham County: All ZIP Codes
  - Eaton County: ZIP Codes 48906, 48911 and 48917
  - Clinton County: ZIP Code 48906

Your family gets:
- HEPA Vacuum
- Fire extinguisher
- Nightlights
- Flashlights
- Green cleaning supplies
- Carbon monoxide detector
- Smoke detectors
- Pillow covers
- Mattress covers
- ... and more – FREE!

To get an application, call us at (517) 373-4225 or visit michigan.gov/leadsafe for more information!
Eligibility

• Households in Ingham County with a child <18 years old with asthma
• Income <80% of Area Median Income
• Priority ranking based on:
  ▪ Age of Housing (pre-1940)
  ▪ Very low-income (<50% AMI)
  ▪ # children with asthma
  ▪ Asthma severity
  ▪ Presence of asthma triggers
Program Design

Four home visits over six months:

- Pre-intervention
- Baseline intervention
- 3-month post-intervention follow-up
- 6-month post intervention follow-up
Site Visits

• Pre-intervention Site Visit includes:
  ▪ Family introductions
  ▪ Discuss program expectations and timelines
  ▪ Informed consent
  ▪ Participation agreement
  ▪ Visual assessment to identify asthma triggers and injury hazards

Pre-intervention | Baseline | 3-Month | 6-Month
Visual Assessments

- Dust/dust mites
- Mold/moisture
- Pets
- Pests
Visual Assessments

- Smoking
- Scented products
Visual Assessments

• Injury hazards
  ▪ Burn/shock
  ▪ Drowning
  ▪ Trip/fall
  ▪ Poisoning

Pre-intervention | Baseline | 3-Month | 6-Month
Visual Assessments

• Other concerns:
  ▪ Asbestos
  ▪ Radon
  ▪ Lead
  ▪ CO
Site Visits

- Baseline Intervention Visit:
  - Questionnaire
  - Basic intervention products installed
  - Education
Questionnaire

- Demographics
- Family history
- Asthma symptoms
- Medical visit frequency
- Asthma medication usage
- Asthma trigger knowledge
- Home cleaning frequency
Pre-intervention | Baseline | 3-Month | 6-Month

Education

- Course Manual
- Hands-on training
- Brochure
- Website
Basic Interventions

Asthma Products:
- High Efficiency Particulate Air (HEPA) vacuum
- Mattress and pillow covers
- Green cleaning products
- Caulk
- Integrated Pest Management (IPM) supplies
- Radon test kits
- Low allergen furnace filters
- Fans
- Door mats
- Mildew proof shower curtains
- Smoking cessation kits
Follow-up Visits

- 3- and 6-month post-intervention follow-up:
  - Questionnaire
  - Additional education
  - Custom intervention products and services
  - Graduation
Custom Interventions

- Window air conditioning unit
- HEPA air filter unit
- Beds
- Moisture reduction
  - dehumidifiers
  - roof repair
  - gutters and downspouts
  - bathroom and clothes dryer vents
Family Selection & Retention

338 Submitted Applications

326 Were Accepted & Received Pre-Intervention Visit

25 Opted out, not reached, did not sign consent

301 Received Baseline Visit

58 Discontinued

243 Received 6-Month Visit

12 Were ineligible
Program Evaluation

• Changes - Six Month v. Baseline
  ▪ Caregiver knowledge of asthma & its triggers
  ▪ Cleaning frequency
  ▪ Asthma severity
  ▪ Unscheduled healthcare visits for asthma
  ▪ Environmental condition of home
HHU I - Results

Demographics, N = 243 (children - one per family)

**Age**
- 0-4: 35%
- 5-11: 45%
- 12-18: 20%

**Gender**
- Male: 55%
- Female: 45%

**Race**
- White: 38%
- African-American: 26%
- Other: 6%
- More than one: 2%
- Not reported: 2%
HHU I - Results

Source of Insurance

- Medicaid/Medicare: 79%
- Parent's Employer: 13%
- Other: 8%
- None: 0%

Caregiver Education

- Did not graduate high school: 15%
- High school graduate, no college: 54%
- At least some college: 31%

Household Income

- <$20,000: 9%
- $20,000 - $39,999: 32%
- ≥ $40,000: 59%

Homeowner

- Homeowner: 44%
- Renter: 56%
Number of Unscheduled Healthcare Visits for Asthma

- Term “unscheduled” used to exclude preventive care visits

- Three types of healthcare
  - Emergency department
  - Hospitalization
  - Healthcare provider (excluding above)
HHU I - Results

Families reporting medical visits in prior 6 months

<table>
<thead>
<tr>
<th>Type of visit</th>
<th>Baseline</th>
<th>At 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED visits</td>
<td>33%</td>
<td>16%</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>Urgent care visits</td>
<td>40%</td>
<td>21%</td>
</tr>
</tbody>
</table>
Asthma Severity

- Frequency that asthma impacted child
- **Examples:**
  - Number of days in past month that child:
    - Had wheezing first thing in morning
    - Woke up due to wheezing/tightness in chest or a cough
    - Reduced or stopped activities due to asthma
    - Missed daycare/preschool/school due to asthma
HHU I - Results

Severity of Asthma Symptoms

- Had wheezing first thing in the morning: Baseline 6.2, At 6 months 3.1
- Woke up because of wheezing or tightness in chest or cough: Baseline 8.7, At 6 months 3.3
- Had shortness of breath because of asthma: Baseline 9.4, At 6 months 3.4
- Had wheezing or tightness in chest or cough: Baseline 12, At 6 months 4.9
- Had to slow down or stop play or activities because of asthma, wheezing, tightness in chest, or: Baseline 9.1, At 6 months 3.3
- Missed preschool or school because of asthma: Baseline 1.9, At 6 months 0.5
How Did We Measure “Knowledge”?

• 37 agree/disagree questions

• At baseline, if incorrect answer given, staff provided correct answer
Asthma episodes usually occur without warning.  
- At baseline: 22.7% correct, 45.9% incorrect  
- 6 months: 68.1% correct, 88.6% correct

People with asthma have no way to know how well their lungs are working.  
- At baseline: 52.0% correct, 71.6% correct  
- 6 months: 85.6% correct, 95.6% correct

A person with asthma can become addicted to their asthma medications.  
- At baseline: 79.5% correct, 90.0% correct  
- 6 months: 73.1% correct, 93.8% correct

An inhaler will deliver a useful dose of medicine, no matter how it is used.  
- At baseline: 79.5% correct, 90.0% correct  
- 6 months: 85.6% correct, 95.6% correct

There is nothing you can do to keep from getting an asthma attack.  
- At baseline: 79.5% correct, 90.0% correct  
- 6 months: 73.1% correct, 93.8% correct

Inhaled steroids have the same side effects as oral steroids.  
- At baseline: 79.5% correct, 90.0% correct  
- 6 months: 73.1% correct, 93.8% correct
Environmental Risk Factors

- Largest decreases - self-report (n=243)

- Mold has been seen or musty odor has been smelled in home (other than child's bedroom)
  - Baseline: 58%
  - 6 months: 39%

- Stuffed toys in child's bedroom
  - Baseline: 68%
  - 6 months: 48%

- Someone has smoked in home in past week
  - Baseline: 22%
  - 6 months: 14%

- Pets allowed in child's bedroom (n=99)
  - Baseline: 60%
  - 6 months: 51%
Limitations

- Self-reporting
- No control group
- No info on other important factors
- No outcome info past 6 months
- Difficult to generalize
Why is the program effective?

- Multiple home visits
- Outreach workers
- Products
HHU Program Costs and Benefits

- Basic products – Average $464 per home
- Custom products – Average $367 per home
- Custom services – Average $1,471 per home

- Value of program costs - $1.3 million
- Value of program benefits - $3.15 million
- Value of net program benefits - $1.85 million
Healthy Homes University II
2008-2011

• Redesign survey tool
• Intervention products
• Environmental sampling
• Asthma action plan and well-asthma clinical visits
• Medicaid claims data and control group
• Technical assistance to Detroit HH Program
Green and Healthy Homes Initiative

WASHINGTON, D.C. - Vice President Biden unveiled *Recovery Through Retrofit*.

- Builds upon Recovery Act
- Expand green job opportunities and boost energy savings by making homes more energy efficient.
Federal Interagency Task Force

The Green and Healthy Homes Initiative

- Department of Housing and Urban Development (HUD)
- Centers for Disease Control and Prevention (CDC)
- Environmental Protection Agency (EPA)
- Department of Energy (DOE)
- Department of Labor
- Department of Agriculture
- National Institute of Standards and Technology

- Goal: New holistic housing standard - not a “piecemeal” approach.
Target Locations

14 target areas

- Cleveland
- Detroit and Flint (MI)
- Louisville (KY)
- Philadelphia
- Baltimore
- Atlanta
- Newark (NJ)
- New Haven (CT)
- Providence (RI)
- Chicago
- Denver
- San Antonio
- Cowlitz Indian Tribe (Washington State)
- Spirit Lake Tribe (North Dakota)
Healthy Homes III
2011-2013*

- Less data collection
- No comparison to control group design
- No environmental sampling
- More objective observation
- More time for education
- HUD’s Healthy Home Rating Tool
- More resource-sharing with partners
- Expanding to Grand Rapids and Flint

* Contingent upon HUD funding
Literature Shows This is What Works...

- Physical home environment
- Health care utilization
- Medication adherence
- Healthy behaviors
- Trained program staff
  - Multiple home visits
  - Education
  - Hands-on applications
Thank You

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