Healthy Homes: Principles and Practice

Green Tier Webinar/Discussion
Jonathan Wilson, NCHH Deputy Director
December 19, 2017
### Total health expenditures per capita, U.S. dollars, PPP adjusted, 2015

<table>
<thead>
<tr>
<th>Country</th>
<th>Expenditure (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>9.451</td>
</tr>
<tr>
<td>Switzerland</td>
<td>6.935</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5.343</td>
</tr>
<tr>
<td>Germany</td>
<td>5.267</td>
</tr>
<tr>
<td>Sweden</td>
<td>5.228</td>
</tr>
<tr>
<td>Austria</td>
<td>5.016</td>
</tr>
<tr>
<td>Comparable Country Average</td>
<td>4.908</td>
</tr>
<tr>
<td>Belgium</td>
<td>4.611</td>
</tr>
<tr>
<td>Canada</td>
<td>4.608</td>
</tr>
<tr>
<td>Australia</td>
<td>4.420</td>
</tr>
<tr>
<td>France</td>
<td>4.407</td>
</tr>
<tr>
<td>Japan</td>
<td>4.150</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>4.003</td>
</tr>
<tr>
<td>OECD Average</td>
<td>3.814</td>
</tr>
</tbody>
</table>

Expenditure for Australia is an estimated value.

Healthy Homes Principles

Keep It:
1. Dry
2. Clean
3. Pest-Free
4. Ventilated
5. Safe
6. Contaminant-Free
7. Maintained

BONUS: Comfortable /Accessible
“Dogs and Cats Prefer Very Soft Cozy Mattresses”
CONTAMINANTS:

Include:

- Lead/Asbestos
- Radon
- Pesticides
- Carbon Monoxide/Combustion By-Products
- Formaldehyde & other VOCs
- Tobacco Smoke
HOLISTIC APPROACH

Integrated approach that considers:

- People living in the home
- The structure
- Potential health hazards
Why a Holistic Approach?

- Moisture/water intrusion
- Mold
- Asthma exacerbation
Moisture/water intrusion -> Structural damage
Structural damage

Pests

Deteriorated lead paint/lead poisoning

Fire

Injuries
Asthma & allergy exacerbation

Pests

Pesticides
Pesticides

Healthy Housing Solutions, Inc.

www.healthyhousingsolutions.com

10
Housing quality matters: 20-40% of asthma attacks linked to home conditions

- Pest: mice & cockroaches
- Moisture/Mold
- Dust Mites
- Tobacco Smoke
- Changes in Temperature
- Chemicals – VOCs

Water Leakage in Past Year
By Income – Milwaukee Metro - 2015

2015 American Housing Survey – Milwaukee
(Milwaukee, Ozaukee, Washington, Waukesha Co)
Rodents or Roaches in Past Year
By Income – Milwaukee Metro - 2015

2015 American Housing Survey - Milwaukee
Childhood Asthma
By Income – Milwaukee Area - 2015

2015 American Housing Survey - Milwaukee
## WisEPHT County Profiles 2017

<table>
<thead>
<tr>
<th>County</th>
<th>Asthma ED Visits/100</th>
<th>Carbon Monoxide ED Visits/100</th>
<th>Child 0-6 BLL ≥ 5 ug/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashland</td>
<td>0.32</td>
<td>0.011</td>
<td>4.8%</td>
</tr>
<tr>
<td>Bayfield</td>
<td>0.32</td>
<td>0.015</td>
<td>1.4%</td>
</tr>
<tr>
<td>Dane</td>
<td>0.22</td>
<td>0.005</td>
<td>0.9%</td>
</tr>
<tr>
<td>Door</td>
<td>0.33</td>
<td>0.011</td>
<td>1.2%</td>
</tr>
<tr>
<td>Eau Claire</td>
<td>0.26</td>
<td>0.005</td>
<td>0.5%</td>
</tr>
<tr>
<td>La Crosse</td>
<td>0.18</td>
<td>0.004</td>
<td>2.1%</td>
</tr>
<tr>
<td>Saint Croix</td>
<td>0.20</td>
<td>0.005</td>
<td>0.0%</td>
</tr>
<tr>
<td>Wood</td>
<td>0.31</td>
<td>0.009</td>
<td>1.7%</td>
</tr>
<tr>
<td>Statewide</td>
<td>0.40</td>
<td>0.008</td>
<td>6.4%</td>
</tr>
</tbody>
</table>
Housing:

If it isn’t healthy, it isn’t affordable

If it isn’t affordable, it isn’t healthy
# Rental Housing Affordability

<table>
<thead>
<tr>
<th>County</th>
<th>Occupancy (% Rental)</th>
<th>Rental Costs Burdensome</th>
<th>Tot. Burdensome Housing Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashland (city)</td>
<td>40%</td>
<td>45%</td>
<td>18%</td>
</tr>
<tr>
<td>Bayfield (city)</td>
<td>40%</td>
<td>50%</td>
<td>20%</td>
</tr>
<tr>
<td>Door (county)</td>
<td>21%</td>
<td>38%</td>
<td>8%</td>
</tr>
<tr>
<td>Fitchburg</td>
<td>51%</td>
<td>47%</td>
<td>24%</td>
</tr>
<tr>
<td>Eau Claire (city)</td>
<td>47%</td>
<td>52%</td>
<td>24%</td>
</tr>
<tr>
<td>La Crosse (city)</td>
<td>52%</td>
<td>49%</td>
<td>25%</td>
</tr>
<tr>
<td>Monona</td>
<td>45%</td>
<td>43%</td>
<td>19%</td>
</tr>
<tr>
<td>St. Croix (county)</td>
<td>23%</td>
<td>42%</td>
<td>10%</td>
</tr>
<tr>
<td>Wisconsin Rapids</td>
<td>38%</td>
<td>47%</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Statewide</strong></td>
<td><strong>33%</strong></td>
<td><strong>47%</strong></td>
<td><strong>16%</strong></td>
</tr>
</tbody>
</table>

*American Community Survey; Affordablehousingonline.com
How Energy Efficiency Improves Health

- Insulation
- Air Sealing
- Heating System Upgrades
- Ventilation
- Vent Dryers
- Efficient Cooking Appliances
- Warmer drier air, improved indoor temperatures & relative humidity
- Less moisture, mold, particulates, pollutants, combustion by-products, allergens
- Lower bills, better comfort

- Fewer heat or cold related deaths
- Less hypertension, heart disease
- Fewer asthma symptoms, respiratory risks, Chronic Obstructive Pulmonary Disease (COPD)
- Fewer heart disease risks
- Fewer cancer risks due to radon, formaldehyde, other sources
- Less stress, better mental health

Source: Occupant Health Benefits of Residential Energy Efficiency, E4TheFuture
Weatherization Plus Health
Rutland (VT) Opportunities for Asthma Repairs (ROAR)

**Rutland Regional Medical Center** – Provides referrals for high risk asthmatics, hospital patients with mobility concerns or COPD; support to NWWVT CDFI for repairs

**NeighborWorks Western Vermont (NWWVT) and Weatherization** - provides home repairs through grants and loans, establish consistent evaluation protocols

**VT State Weatherization** – provided Healthy Homes Evaluator training

**VT State Asthma Program** – provides technical assistance in evaluation

**Tohn Environmental Strategies** - technical advisor
ROAR Summary

• The medical staff at Rutland Regional Medical Center and the Community Health Team identify patients who could benefit from home repairs due to their specific health concerns. High-profile candidates are those who suffer from asthma or COPD, and require home changes to support their improved health.

• Changes for air quality can include simple updates such as replacing carpets, to more complex changes that address home heating and energy efficiency measures. The program is data-driven and will make changes based on the best method to improve home safety and health for the individual patient and other residents in the home.
# ROAR Treatments

<table>
<thead>
<tr>
<th>Covered by Standard Weatherization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture repairs in standard weatherization (seal return ducts, repairs)</td>
</tr>
<tr>
<td>Cover dirt floors with poly</td>
</tr>
<tr>
<td>Cover sump pump or install sump pump</td>
</tr>
<tr>
<td>Bath fan repaired, replaced per ASHRAE 62.2</td>
</tr>
<tr>
<td>Replace or repair dryer venting</td>
</tr>
<tr>
<td>Upgrade dehumidifier with Energy Star</td>
</tr>
<tr>
<td>Other standard weatherization repairs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Added Weatherization Plus Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture control not covered by weatherization in client bedroom</td>
</tr>
<tr>
<td>Moisture control not covered by weatherization in other interior areas</td>
</tr>
<tr>
<td>Roof, gutter other exterior repairs</td>
</tr>
<tr>
<td>Provide new dehumidifier</td>
</tr>
<tr>
<td>Added ventilation – supplement ASHRAE 62.2 bath exhaust</td>
</tr>
<tr>
<td>Carpet or flooring repairs/replacement with smooth floors in client bedroom</td>
</tr>
<tr>
<td>Carpet or flooring repair/replacement with smooth flooring in other rooms</td>
</tr>
<tr>
<td>Pest control – exclusion - describe pests (mice, cockroaches)</td>
</tr>
<tr>
<td>Pest control - professional visit describe pests (mice, cockroaches)</td>
</tr>
<tr>
<td>Cleaning or allergen reduction (pest, mold, dust)</td>
</tr>
<tr>
<td>Clean wood or pellet stove</td>
</tr>
</tbody>
</table>
Families with children with uncontrolled asthma are referred into program where they receive tailored health education to self-manage asthma and maintain a healthy home plus home repairs to address asthma triggers.

“Our pediatric population has several children with uncontrolled asthma. What we are finding is often these children are living in an environment surrounded with triggers, making their asthma very difficult to manage. Through the use of Healthy Homes Des Moines we are able to improve the conditions in which these children live, such as replacing the flooring or fixing the leaky roof. It is through this program we are able to decrease their exposure to these triggers, therefore improving their health and making their asthma easier to manage.”

Shelly Hutchings, RN, Pediatric Health Coach
Code Enforcement: The Importance of Deterrence

- Encourages compliance and deters violations
- Levels the playing field
- Generates fines as a source of revenue to support enforcement
- Good deterrence depends on:
  - High likelihood violations will be detected (*expectation one will be inspected*)
  - Swift and predictable responses to violations
  - Responses that include the appropriate sanctions
  - A perception among violators that the first three items are present

Thanks to Nan Feyler, JD MPH, Stoneleigh Foundation Fellow
Director of the Housing and Child Welfare Initiative City of Philadelphia
Elements of Effective Housing Code Enforcement

- Data use in planning and evaluation
- Rental license requirements
  - Revenue helps support enforcement
  - Ideally linked to inspection
- A strong housing code
  - NCHH Healthy Housing Standard
  - International Property Maintenance Code (IPMC)
- Comprehensive inspector training including health impact of violations
Elements (cont.)

- Proactive approach to housing inspections
  - Targeted inspection in a high risk neighborhood
    - Oakland, CA
  - Enhanced enforcement of properties owned by landlords with code violations
    - Portland, OR
  - Health-related code enforcement to reduce asthma and the risk of lead poisoning
    - Asthma - Breathe Easy at Home, Boston
    - Lead - Rochester NY
- Inspection based on a schedule
  - Boston
    - Los Angeles
- Enhances complaint-based enforcement
Elements (cont.)

- Establish revenue source and adequately fund
- Rigorously enforce the code
  - Devote adequate funding to enforcement
  - Issue and collect fines
- Educate tenants
- Educate landlords
How To Make Things Happen

- Establish diverse working group or coalition
  - Portland, Oregon
  - Los Angeles, California
- Raise public awareness
- Find a champion in government
- Learn from others
  - Change Lab Solutions
  - Center for Community Progress
The National Healthy Housing Standard
National Healthy Housing Standard: Intent

Health Based

Attainable, Enforceable and Practicable

PUBLIC HEALTH PROTECTION

HOUSING AFFORDABILITY
NHHS’s Value Add

Not a construction or rehab standard...

Strengthen existing code

Adopt in entirety

Overlay IPMC

Guide rental property owner

Deliver standard of care for every home

National Center for HEALTHY HOUSING
# NHHS Basics by the Numbers

<table>
<thead>
<tr>
<th>Chapters</th>
<th>Number of Provisions (Core and Stretch)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>1. Duties of Owners and Occupants</td>
<td></td>
</tr>
<tr>
<td>2. Structure, Facilities, Plumbing, and Space Req.</td>
<td></td>
</tr>
<tr>
<td>3. Safety and Personal Security</td>
<td></td>
</tr>
<tr>
<td>4. Lighting and Electrical Systems</td>
<td></td>
</tr>
<tr>
<td>5. Thermal Comfort, Ventilation, and Energy Efficiency</td>
<td></td>
</tr>
<tr>
<td>6. Moisture Control, Solid Waste, and Pest Mgmt.</td>
<td></td>
</tr>
<tr>
<td>7. Chemical and Radiological Agents</td>
<td></td>
</tr>
</tbody>
</table>
## NHHS v. Other Standards (Examples)

<table>
<thead>
<tr>
<th>Provision</th>
<th>IPMC</th>
<th>HQS</th>
<th>National Healthy Housing Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO Alarms</td>
<td></td>
<td></td>
<td>✅</td>
</tr>
<tr>
<td>Integrated Pest Management</td>
<td>?</td>
<td></td>
<td>✅</td>
</tr>
<tr>
<td>Room Lighting</td>
<td>✅</td>
<td></td>
<td>✅</td>
</tr>
<tr>
<td>Dwelling Ventilation</td>
<td>✅</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td>Correct Moisture Problem, Underlying Cause</td>
<td></td>
<td></td>
<td>✅</td>
</tr>
<tr>
<td>Asbestos, Wood Products</td>
<td></td>
<td></td>
<td>✅</td>
</tr>
</tbody>
</table>
Success Story: Tukwila WA

- March 5, 2015: **NCHH completes analysis** of NHHS v. Tukwila code (IPMC-based)
  - Of 146 core NHHS provisions, **40% already in Tukwila code**
- Spring 2015: NCHH advises Tukwila on **code upgrade process**
- October 5, 2015: Tukwila passes Ordinance 2481 adopting 2015 IPMC **with amendments from NHHS**
  - 32% of NHHS covered by IPMC
  - 54% of NHHS added
  - 14% not added (e.g., fire codes; smoke-free policies; trash-recycling; noise)
  - 50% of Chap.1 plus 2 stretch added
Thank You!

jwilson@nchh.org
Housing and Health Equity: Engaging Stakeholders

A few key questions:

Being purposeful with resources and investments:

• Will integrating health bring added value to this initiative? Or illuminate more about who may benefit or fare worse?
• Is this an issue that has been identified by communities facing inequities (those who have not been adequately represented in decision-making processes)?

Being mindful of how the initiatives advance:

• Are communities facing inequities at the decision-making table? Is there leadership or meaningful involvement on the part of these communities in each step of the initiative?
• Will the process for this initiative grow and sustain decision-making systems that are more transparent, inclusive, responsive, and/or collaborative?
Benefits of Authentic Stakeholder Engagement

Fundamental to advancing health equity. Housing serves as a powerful platform for community health.

Through authentic stakeholder engagement, initiatives can:
  • help to identify the needs, opportunities, and assets in community
  • build individual and organizational capacity, and provide community outreach resources
  • contribute connections and buy in important to success and sustainability
Approaches to Integrating Health Equity: HIA

• Health Impact Assessment

A combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects.


• Health Impact Assessment and Housing: Opportunities for the Housing Sector
• Health Impact Assessment and Housing: Opportunities for the Public Health Sector
  • Guides for housing and health sector practitioners to help integrate health into housing (and vice versa)
Approaches to Integrating Health Equity: Checklists, Guides, and Toolkits

  - MeasureUp: Compilation of tools for mapping assets, measurement, strategies, measurement stories, and more
- The Building Healthy Places Toolkit: Strategies for Enhancing Health in the Built Environment developed by the Urban Land Institute outlines evidence supported opportunities to enhance health through changes in approaches to buildings and projects.

- Metrics for Healthy Communities developed by Wilder Research of St. Paul, MN and the Federal Reserve Bank of Minneapolis, this site offers measures, data sources, and logic models (affordable and supportive housing) for community development and health organizations working together to improve social determinants of health.

- The Mariposa Healthy Living Toolkit developed by the Denver Housing Authority helps guide planning, decisions, and actions to improve the important social determinants of health. The tool promotes cross-sector partnerships, encourages a participatory approach to engaging residents and stakeholders, and helps stakeholders identify the best evidence to inform development decisions.