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Healthy Homes for Elders: Multi-trigger, Multi-component Environmental Interventions for Asthma

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Et al.

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Repository Citation

Turcotte D, Woskie S, Chaves E, Gore R, Adejumo K, Caraballo C, Mouth R. (2014). Healthy Homes for Elders: Multi-trigger, Multi-component Environmental Interventions for Asthma. Community Engagement and Research Symposia. <https://doi.org/10.13028/qj3d-0k45>. Retrieved from https://escholarship.umassmed.edu/chr_symposium/2014/program/6

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Healthy Homes for Elders: Multi-trigger, Multi-component Environmental Interventions for Asthma

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Funded by the U.S. Department of Housing and Urban Development



Why asthma? Why Lowell?

- High asthma rate
- Diverse community
- Community health & PHA partners
- Novel intervention research with asthmatic seniors

Asthma Prevalence Rates in Lowell by Age-Group

	Prevalence in Lowell	95% CI-Lo	95% CI-Up
Children (5-14)*	13.01	12.40	13.63
Adults (18-64)**	15.9	12	19.9
Adults (65+)**	13.6	6.6	20.7

*Pediatrics Asthma Surveillance, 2008-2009;

**Massachusetts Behavioral Risk Factor Surveillance System, 2011

Prepared 01/13/2014 by Massachusetts Department of Public Health

Project Goals:

Home assessments (90)

Home interventions (90)

Evaluate home intervention effectiveness

Disseminate findings



Partners & Roles

- University of Massachusetts Lowell
- Lowell Community Health Center
- Lowell Housing Authority

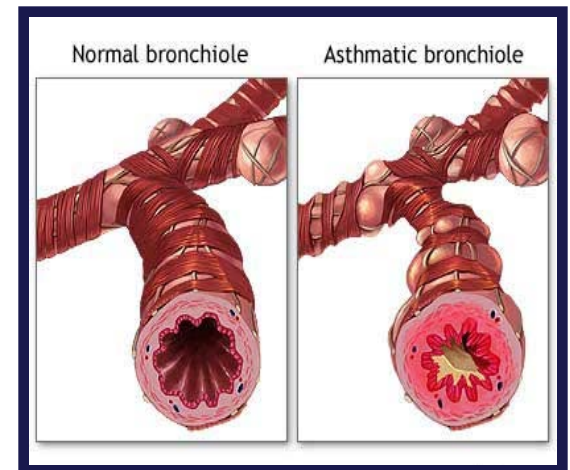
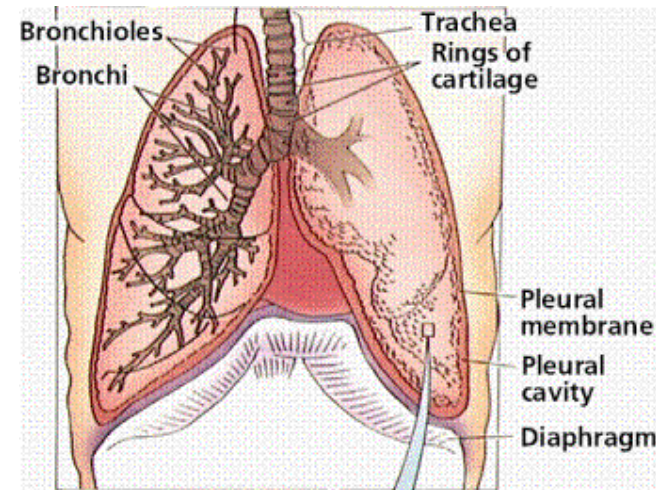


Who are we enrolling?

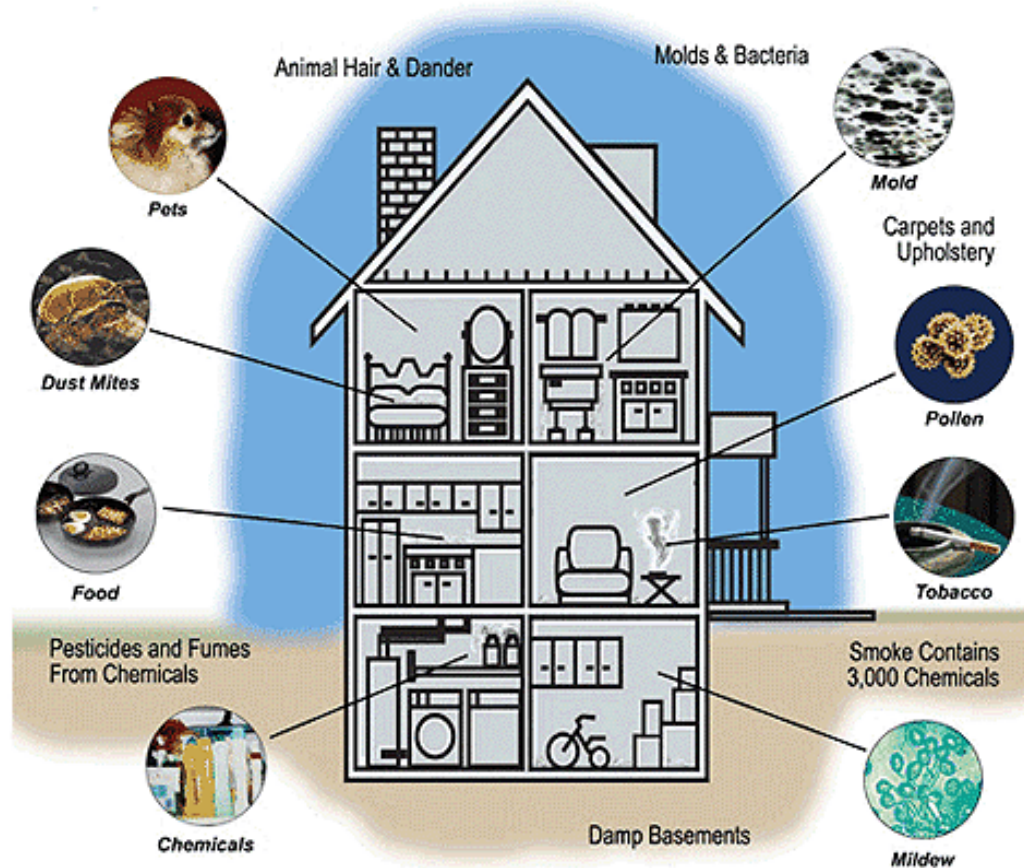
- Live in Lowell Public or Assisted Housing
- Age 62+
- Current Asthma or
- Asthma Diagnosis & COPD
- Low Income

What is Asthma?

- A serious & sometimes life-threatening respiratory disease
- Affects the quality of life for millions of Americans
- No cure for Asthma yet
- Can be controlled through medical treatment & management of environmental triggers



Indoor Environment and Asthma



- Americans spend up to 90% of their time indoors
- Indoor concentrations of most pollutants are higher than outdoor

Indoor Environment and Asthma

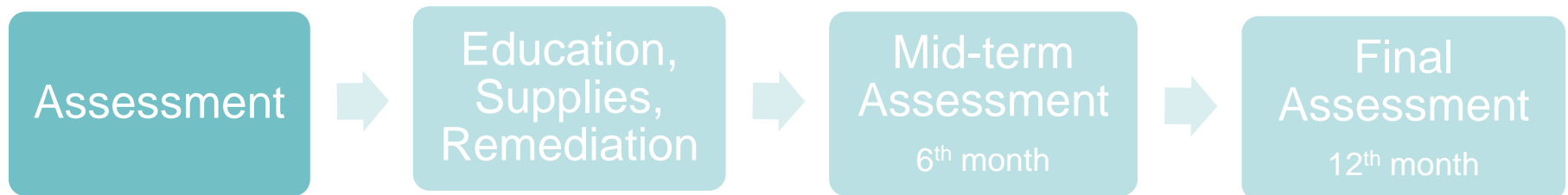
- Indoor allergens and irritants can play significant roles in triggering asthma attacks
 - Ex: pet dander, mice, cockroaches, dust mites, harsh chemicals, fragrances, smoke, moisture/mold, pollen



- Important to recognize potential asthma triggers & reduce exposure

Home Intervention - Assessment

- Health/environmental assessments
 - Health questionnaires
 - Urinary cotinine
 - eNO (Niox Mino)
 - Environmental walk-through assessment
 - Environmental questionnaire
 - Dust sampling
 - NO₂ sampling (gas stoves)



Education, Supplies, Intervention

Based on findings from assessment:

- Education

- Dust mites and healthy cleaning practices
- Pets
- Avoiding pests
- Moisture/mold control
- Smoking
- Air pollution (indoor & outdoor)

- Supplies

- HEPA vacuum
- Allergen-proof mattress and pillow covers
- Trash can with lid
- Food containers
- Non-toxic cleaner
- Baits and traps for pests



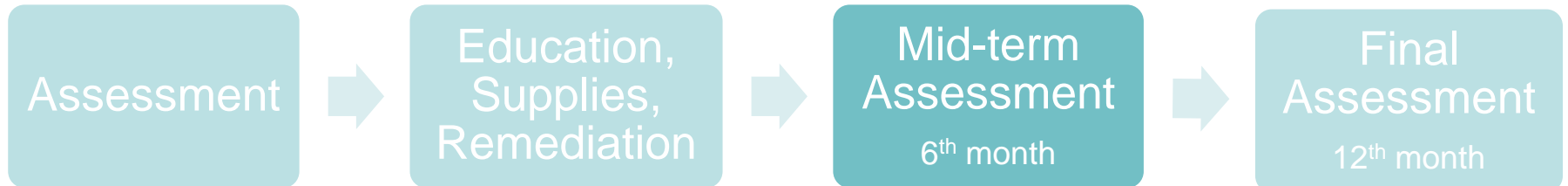
Education, Supplies, Remediation Cont.

- Remediation
 - Gas stove replacement
 - Install & repair ventilation
 - Integrated Pest Management (IPM)
 - Industrial cleaning



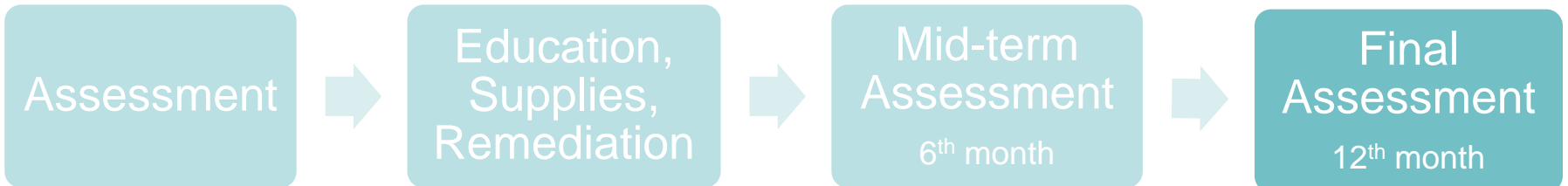
Mid-term Assessment

- Health questionnaire (abbreviated)
- Environmental questionnaire (abbreviated)
- More supplies if needed
- Reinforce education



Final Assessment

- Health questionnaires
- Urinary cotinine
- eNO (Niox Mino)
- Environmental questionnaire
- Environmental walk-through
- Dust sampling
- NO₂ sampling (gas stoves)
- Gift certificate



Results

Table 1. Demographics of participants

	(n=49)	Percent (%)
Gender: Male	11	22.5
Gender: Female	38	77.5
Race/ethnicity		
White/Caucasian	41	83.7
Black/African American	1	2.0
Asian	4	8.2
Native American	1	2.0
Other/Unknown	2	4.1
Hispanic/Latino	27	55.1
Mean Age = 69.4 (n=45)	--	--

General Health

	(n=49)	Percent (%)
Very Good	2	4.1
Good	10	20.4
Fair	21	42.9
Poor	10	20.4
Very Poor	6	12.2

St. George Respiratory Questionnaire English for the U.S.

Respiratory Problems Over Last 3 Months

Everyday to several days per week	(n=49)	Percent (%)
Coughed	33	67.3
Brought up phlegm (sputum)	23	46.9
Shortness of breath	34	69.4
Wheezing attacks	17	34.7
Severe respiratory attacks (3+)	12	24.5

St. George Respiratory Questionnaire English for the U.S.

Health & Medical Care During Past Year

	(n=49)	Percent (%)
Overnight in the hospital	10	20.4
Seen in an emergency room	12	24.5
Emergency visit to doctor/clinic	16	32.6
Treated with antibiotics for a chest illness	15	30.6
Daily medication use for respiratory problems	44	89.8

Environmental Exposures Asthma Triggers

	(n=46)	Percent (%)
Air freshener used (1+ days/wk)	35	76.1
Candles/incensed used (1+ days/wk)	5	10.9
Signs of mice (past month)*	6	13
Signs of cockroaches (past month)*	7	15.2
Mold or mildew	7	15.2
Gas Stove (NO & NO2)	29	61.7

*2 household had signs of mice and cockroaches

Environmental Exposures Asthma Triggers- Smoking

	(n=46)	Percent (%)
Subject smokes	11	23.9
Others in household smoke	0	0
Visitors smoke	6	13
Smoke enters from other apartments/outside	12	26.1

Conclusion

- Prevalence of environmental asthma triggers
- Difficulties with exhaled Nitric Oxide (eNO) measurement using Niox Mino device
- Recruitment challenges
- Involve key partners to increase impact
- Importance of multi-cultural, multilingual lay community health outreach workers



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