Environmental Practices for Making Homes Safer and Healthier

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NORTH CAROLINA HEALTHY HOMES

CEHS

Funded by the National Institute of Environmental Health Sciences (grant # P30-ES010126) and NC Department of Health and Human Services (contract #40930)
EFFECTS OF ASTHMA TRIGGERS

AIRWAY DURING NORMAL BREATHING
- Muscles
- Airway lining

AIRWAY DURING ASTHMA SYMPTOMS
- Mucus
- Inflamed, thickened airway lining
- Tightened muscles constrict airway
- Buildup of mucus in airway
Five Healthy Homes Issues

- Lead poisoning prevention
- Moisture & mold
- Indoor air quality
- Pests & pesticides
- Maintenance & monitoring
In a healthy home, we monitor 5 things:

- Smoke
- Indoor Humidity
- Carbon monoxide (CO)
- Radon
- Furnace Filter
Strategy: **multi-step approaches** to removing exposures are most successful.
Addressing Community Concerns about Carbon Monoxide Exposure

• Public housing community in Durham, NC
• Built in 1953
• High CO levels detected in late 2019
• >300 families displaced to hotels for several months
• Partnership to conduct outreach in hotels
Impacts of Carbon Monoxide Exposure

- Source of CO: fuel-burning appliances and items
- Travels through the body quickly when breathed in from the air
- Treatment is oxygen
- Symptoms worsen, depending upon amount and length of exposure
- Fuel-burning appliances also produce nitrogen dioxide (asthma trigger)

Sources: ATSDR, Public Health Statement on CO, 2012; Centers for Disease Control, 2018
Recommendations to Reduce CO Exposure

DO...
- Circulate your air with proper ventilation.
- Install a CO alarm on every floor/outside the bedrooms!
- Make sure gas stoves/appliances vent to the outside.

DON’T...
- Use portable gas stoves indoors or run your car in the closed garage.
- Use the oven as a source of heat.
- Smoke in the home.

Sources: ATSDR, Public Health Statement on CO, 2012; National Center for Healthy Housing
Mold and Moisture

- Leaks from outside
- Clogged gutters
- Window condensation
- Leaking pipe
Housing Units that are Mobile Homes, 2018

Source: http://convergence.unc.edu/vulnerabilities/housing/, Retrieved 7/6/2021
Indoor humidity should be between 30 and 50%.
Mold and Moisture

Strategy: Prevent moisture

- Image of a person working under a sink
- Image of a dehumidifier in a living room
- Image of a digital thermometer showing 75°F and 74%
- Image of a person cleaning a gutter
Strategy: Remove sources of moisture
Pests and pesticides: Rodents and cockroaches

Detectable levels of mouse and cockroach allergen found in:

30% of US homes

63% of US homes
Last Resort: Safer Pesticides

Strategy: Integrated Pest Management
Exclude
Monitor humidity (35% indoor humidity, 75°F temperature)

Sticky monitors

Fix leaks

Monitor
In a healthy home, we monitor...

<table>
<thead>
<tr>
<th>Smoke</th>
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<tbody>
<tr>
<td>Indoor Humidity</td>
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<tr>
<td>Carbon monoxide (CO)</td>
</tr>
<tr>
<td>Furnace Filter</td>
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<td>Radon</td>
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</tbody>
</table>
Fires and burns are #5 in home-related fatal injuries among children.

50 fatalities from home fires within 9 months in 2017.

1. Every home should have at least one working smoke alarm.
2. Test alarms; replace battery once a year; replace alarm after 10 years.
3. Keep alarm free of dust.
Indoor Humidity

- Increased humidity increases the likelihood of mold and pests (rodents and roaches).
- Humidity builds from a home’s everyday life and from things that need to be repaired.

1. Keep indoor humidity at 30-50% range.
2. Use ventilation fans.
3. Get rid of damp cardboard, carpet, particle board, etc.
Home maintenance

Carbon monoxide

- Nickname is the Silent Killer – can’t see, smell or taste it
- Impacts lungs, brain and heart
- Caused by fuel-burning appliances/machinery

1. Have gas, oil, and coal burning appliances serviced every year.
2. Install CO detectors outside every sleeping area on every floor; 15 feet away from fuel-burning appliances.
3. Test alarms; replace battery once a year; replace alarm every 5 years.
Broken HVAC system cannot remove pollen, dust mites, and pollution particles from the air.

Clogged filters result in lung illnesses and poor ventilation through the home.

1. Replace furnace filter 3-5 times/year.

2. Have furnace inspected annually by a professional.

3. National Center for Healthy Housing recommends a Merv-11 filter.
Home maintenance
Radon

- Naturally occurring gas; seeps from cracks in foundation, walls, and joints.
- Lung cancer deaths from radon exposure is 2nd to lung cancer deaths from smoking (30,000 deaths/year).
- Any home could have a radon problem.

1. All homes should be tested regardless of geographic location.
2. Test kits cost $10-$15; some health depts provide free kits.
3. Repairs for low-income homeowners (NC Housing Finance Agency) or loans through NC Self Help, [www.ncradon.org](http://www.ncradon.org)
Additional Resources

http://nchealthyhomes.com
Outreach and Engagement

The UNC-CEHS Community Engagement Core (CEC) enhances the environmental health literacy of public health professionals, community health workers and vulnerable populations, by increasing their understanding of the Center’s environmental health sciences research and empowering them to make informed decisions to reduce harmful environmental exposures in homes and communities. The CEC also fosters dialogue between UNC-CEHS researchers and community partners about Center research to inform responsive research approaches and strategies for communicating CEHS science to community audiences.

- Asthma
- Lead and Healthy Homes
- Environmental Cancers

Webinar
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