Health Impacts: 
Lead and Weatherization

Neasha Graves
Center for Public Engagement with Science
UNC Institute for The Environment

Funding to develop and conduct this training is provided by NIEHS (grant #P30ES010126) and NC Department of Health and Human Services (contract #40930).
Lead and Healthy Homes Trainers

Neasha Graves, MPA
UNC Institute for the Environment

Megan Rodgers, MEA
UNC Institute for the Environment
Why is lead poisoning prevention important for young children?

- Eat, drink, breathe more
- Hand to mouth
- Play and move close to ground
- Rapidly developing bodies
- Spend 90% of time indoors
- More likely to have nutritional deficiencies
- Gut absorbs differently
Lead harms health in several ways.

No level of lead is safe!

0 µg/dL

- Decreased IQ levels and academic abilities
- Attention-related behaviors
- Anti-social behaviors

1-5

- Delayed puberty
- Decreased growth and hearing

10

- Increased risk of hypertension in adulthood

30

- 50 - 100
  - Severe brain damage
  - Kidney damage
  - Anemia

150

Death

Lead poisoning is a brain injury.

~ David Jacobs, Chief Scientist, National Center for Healthy Housing
When should a child be tested for lead poisoning?

- All Medicaid-eligible children must be tested at 1 and 2 years old.
- If they haven’t been tested, make sure children 3-6 years old are tested.
How does lead harm pregnant women and their babies?

During pregnancy, lead can...

- be stored in the bones
- move into mother’s bloodstream
- cross the placenta and can be found in fetal brain
- result in low birth weight, miscarriage and pre-term birth
Lead in Pregnancy Risks and Testing

Pregnant women are put at risk by...

- Native countries with high lead levels
- Jobs
- Older housing
- Pica (eating non-food items)
- Lead consumed over a lifetime

Free blood lead tests at Health Department
Eligible for inspection when testing $\geq 5\mu g/dL$
Lead paint
Older homes are more likely to contain lead-based paint

*Houses built before 1978 have lead-based paint*

Source: http://www2.epa.gov/lead/protect-your-family#protect
Lead in jobs

- Welding
- Car Repair
- Construction
- Painting (Indoor or Outdoor)
Sources of LEAD in Drinking Water

Copper Pipe with Lead Solder: Solder made or installed before 1986 contained high lead levels.

Faucets: Fixtures inside your home may contain lead.

Galvanized Pipe: Lead particles can attach to the surface of galvanized pipes. Over time, the particles can enter your drinking water, causing elevated lead levels.

Lead Service Line: The service line is the pipe that runs from the water main to the home’s internal plumbing. Lead service lines can be a major source of lead contamination in water.

Lead Goose Necks: Goose necks and pigtails are shorter pipes that connect the lead service line to the main.

Source: EPA
# Lead in food

<table>
<thead>
<tr>
<th>Spices</th>
<th>“Hot” Flavorings</th>
<th>Imported Candy</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Spices" /></td>
<td><img src="image2.png" alt="“Hot” Flavorings" /></td>
<td><img src="image3.png" alt="Imported Candy" /></td>
</tr>
</tbody>
</table>

**Lead in Spices Library**
https://nchealthyhomes.com/lead-sources/
Lead in pottery and ceramics

Lead-Glazed Pottery
Lead in other common household items

- Toys
- Bullets and Fishing Weights
- Toy Jewelry
- Keys
- Mini-blinds
Lead in home remedies

- Calabash Chalk
- Qian Dan
- Litargirio
- Daw Tway
- Bo Ying
Lead in cultural items

Ayurvedic Medications

Amulets and Charms

Sindoor

Kohl, Kajal, Surma, Tiro
Health Impacts Involving Weatherization
A healthy home should monitor 5 things.

- Smoke
- Indoor Humidity
- Carbon monoxide (CO)
- Furnace Filter
- Radon
Impacts from Exposure to Carbon Monoxide

Health effects
- CO from air travels through the body quickly
  - heart, blood, brain and muscles
- Blood test confirms exposure
- Treatment is oxygen

Symptoms
Progress from headaches to nausea, confusion, unconsciousness, and worse

People at higher risk
Small children, pregnant women, elderly, and people with lung/heart conditions
Sources of Carbon Monoxide

- Unvented kitchen stoves and ovens
- Boilers, furnaces, hot water heaters
- Gas-powered space heaters
- Fireplaces, wood burning stoves
- Generators
- Car exhaust

CO has no taste, smell or color
How mold enters homes

- Leaks from outside
- Clogged gutters
- Window condensation
- Leaking pipe
Other Impacts on Indoor Air Quality
Resources
Welcome to the North Carolina Healthy Homes website! This site provides general information to the public on healthy homes issues and is designed to provide health, housing, and community organization professionals access to resources for their work in educating North Carolina residents about maintaining a healthy home and in improving health outcomes.
NC Healthy Homes

Welcome to the North Carolina Healthy Homes website! This site provides general information to the public on healthy homes issues and is designed to provide health, housing, and community organization professionals access to resources for their work in educating North Carolina residents about maintaining a healthy home and in improving health outcomes.

PARTNER SPOTLIGHT

Alan Huneycutt is an Environmental Senior Specialist for the Children’s Environmental Health Unit of the North Carolina Department of Health and Human Services. In this position, Alan works with local health departments and other environmental health specialists to mitigate...
Educational Materials

Protect Your Family From Carbon Monoxide Exposure

Carbon monoxide (CO) is a gas with no odor, taste or smell. It can harm the health of anyone, even healthy people, by getting into the heart, lungs, blood and brain.

Where carbon monoxide comes from:
- CO is produced when a fuel is not burned completely.
- Sources of CO may include:
  - Gas stoves or ovens without exhaust fans
  - Portable heaters that use kerosene or other gas
  - Gas grills and generators used indoors
  - Cigarettes smoking
  - Exhaust from cars, trucks or other gas-powered machinery

Health effects of CO exposure:
- CO makes your heart work harder to get oxygen to your body.
- Children, pregnant women, the elderly, and people with heart or lung illnesses are at greater risk.
- Common symptoms include:
  - Headaches
  - Dizziness
  - Nausea
  - Loss of consciousness
  - Death
- Symptoms can worsen with longer exposure.

CO poisoning can be treated in a hospital with oxygen.

How to avoid exposure to CO in your home:
- Gas stoves and ovens should vent to the outside.
- Use the exhaust fan over the stove when cooking.
- Do not leave the exhaust fan on while cooking.
- Change furnace filters as recommended by the manufacturer.
- Install CO alarms.

Your CO alarm:
- Put an alarm on each floor of the home, put one outside the bedrooms.
- Do not install the alarm directly above or next to stoves or heaters.
- Change the batteries twice a year.
- Follow instructions for testing the alarm.
- If the alarm sounds, go outside and get help.
- Alarms usually last about 5 years.

Do not:
- Use fuel burning appliances without ventilation
- Use portable gas stoves indoors
- Use the oven to heat your home
- Smoke in your home
- Use gas burning appliances within 26 feet of vents and doorways

Resources:
- NC Healthy Homes, http://nchealthyhomes.org
- Centers for Disease Control, https://www.cdc.gov/od/cbo/dcp/carbonmono.html (racing to publish this material as provided by namc, grant project size)
COMMUNITY ENGAGEMENT CORE (CEC)

The CEHS Community Engagement Core (CEC) enhances the environmental health literacy of public health professionals, community health workers, and vulnerable populations by increasing...
Questions?
Contacts

Neasha Graves
neasha_graves@unc.edu
(919)966-3746

Megan Rodgers, MEA
merodgers@unc.edu
(919)966-7238

Contact for Lead/HH Task Force & listserv