Combining the Radon and Tobacco Smoke Messages to Prevent Lung Cancer

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BREATHE
Bridging Research Efforts and Advocacy Toward Healthy Environments

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BREATHE
UK College of Nursing

• A university-community evidence-based research & engagement partnership (formerly CIAP) with nearly 80 organizational partners
• A UK Commonwealth Collaborative
• Affiliated with UK’s Markey Cancer Center
BREATHE
Who We Are

Our Vision:
Empowering communities to achieve health equity

Our Mission:
To promote healthy environments with at risk populations through research, community outreach and engagement, policy development, and access to health services

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Common Hazards
- Fires & falls
- Secondhand smoke
- Radon gas
- Carbon monoxide
- Pesticides
- Firearms

Impacts on Health
- Structure & Safety
- Air quality
- Water quality
- Chemicals
- Resident behavior
- Neighborhood

Surgeon General Call to Action to Promote Healthy Homes, 2009

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FRESH

• Freedom from
• Radon Exposure and
• Smoking in the
• Home

*Can Dual Home Screening Reduce Exposure?*

R01ES021502-05 (9/1/12-5/31/17)
Tobacco, Radon, & Lung Cancer

• **Tobacco Smoke**
  - 85% lung cancer cases caused by tobacco smoke.
  - 3,000 lung cancer deaths per year among nonsmokers from secondhand smoke

• **Radon**
  - 20,000 lung cancer deaths per year from radon exposure (only 2,100-2,900 among never smokers)
  - Of those exposed to at least 4 pCi/L of radon, the risk of developing lung cancer is estimated at 62/1,000 for smokers and 7/1,000 for nonsmokers.
  - Most never smokers with lung cancer are women.
Lung Cancer Age-Adjusted Mortality Rates by State, 2013

Kentucky Ranks #1

Data Source: CDC

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Tobacco Smoke and Radon Cause Lung Cancer

- Smoking and secondhand smoke combined are the #1 cause of lung cancer.

- Radon is the 2nd leading cause of lung cancer.
Purpose

• To describe innovative approaches to communicating the combined risk of exposure to both radon and tobacco smoke to the public.

• This *synergistic risk* dramatically increases the likelihood of lung cancer.

• Radon professionals, environmental health practitioners, and tobacco control advocates are in a unique position to work together to prevent lung cancer.
Radon

• While 82% of respondents had heard of radon, only 15% have tested for radon (Wang et al., 2000)
Exposure to Radon in Kentucky

Radon Levels by Rock Type (pCi/L)
- 00 - 2.7
- 2.71 - 4.0
- 4.01 - 8.0
- 8.01 - 16.00
- 16.01 - 25.30

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Radon and Lung Cancer

• When radon gas is inhaled, alpha particles are emitted by the radon decay products (Po and Pb), leading to significant DNA damage in human cells.

• Radon decay products create Pb-210, a semi-stable isotope of lead (half-life 22 yrs)

• Most radon-induced lung cancers are associated with low to moderate radon concentrations.

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Why is Secondhand Tobacco Smoke so Toxic?

SHS contains at least 7,000 chemicals. At least 70 are known to cause cancer in humans.

- Methanol
- Carbon Monoxide
- Hydrogen Cyanide
- Acetone
- Tar
- DDT
- Naphthalene
- Vinyl Chloride
- Benzene
- Formaldehyde
- Mercury
- Lead
- Arsenic
- Toluene
- Cadmium
- Ammonia
- Butane
- Ethanol

There is no risk-free level of exposure to firsthand or secondhand tobacco smoke.
Secondhand Smoke and Lung Cancer

• Nonsmokers exposed to secondhand smoke at home or work increase their risk of developing lung cancer by 20 to 30 percent.

• Nearly half of all nonsmoking Americans are still regularly exposed to secondhand smoke.

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Eliminating SHS in the Home

• Ask household members to sign a smoke-free pledge.

• Post a no smoking sign in your home.

• Ask smokers to smoke outside, wear a smoking jacket to cover clothes, and leave jacket outside.

• Smoke outside at least 20 feet from doors, windows, and vents.

• Move ashtrays out of the house and away from doors, windows, vents.
Eliminating SHS in the Home

• Personalize relevance
• Explore perceived risk for health problems and lung cancer worry
• Enlist social support
• Discuss benefits and barriers
• May be a benefit when trying to sell home
• SHS may cause radon levels to be artificially low.
• May encourage smokers to want to try to quit
Secondhand Smoke and Radon: A Dangerous Combination!

- Secondhand smoke particles linger in the air and are small enough to be inhaled directly into the lungs.
- Radon byproducts have a static charge and are attracted to secondhand smoke particles in the air.
- The combination of radon attached to secondhand smoke particles greatly increases the likelihood of lung cancer.

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How should we frame the message about synergistic risk and lung cancer?

Important Message
Create a Teachable Moment!

Adapted from the Teachable Moment model (McBride et al., 2003)
Framing Synergistic Risk

• Breathing radon is dangerous, but it is more harmful when you also breathe tobacco smoke.
• There are no safe levels of either radon or secondhand smoke.
Personalized Messaging

• Make the opportunity to incorporate personalized messages into everyday face-to-face individual and group interactions.
  – Ask about tobacco use, SHS exposure, and radon testing.

• Conversation opens the door for education about why and how to test and fix the home for radon, and why and how to establish a smoke-free home policy.
Printed Materials

• Targeted, colorful brochures and posters can be placed in high traffic areas such as community centers, banks, grocery stores, post offices, schools, and medical offices.

• Push cards can be used in church bulletins.
School Programs and Mailings

• Use educational materials in school and programs and mailings targeting Healthy Homes.

• Programming in conjunction with National Radon Action Month and Kick Butts Day can increase awareness about the synergistic risks and solutions.

• Work with school nurses!
Community Events

• Community awareness events
• Community meetings
• Health fairs
• Social events
• Farmers’ markets
• Church events

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Media Campaigns

• Target messages about the dangers of radon and tobacco smoke via mass media channels
  – Ads (print and radio)
  – Op-eds
  – Busboards
  – Earned Media

• Target populations who are at high risk for tobacco use such as lower socioeconomic groups.

Radon mitigation worth the cost; element second leading cancer cause

Chuck Grone, a respiratory therapist from Villa Hills, is keenly aware of the dangers of radon. Radon is the second leading cause of lung cancer and is a naturally occurring, invisible, odorless gas that, when dispersed in outdoor air is harmless. However, when radon is trapped in buildings, it can be harmful at elevated levels. There is overwhelming scientific consensus that exposure to elevated levels of radon causes lung cancer in humans.

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Dr. Sarah Cavendish, technical assistance coordinator for the Clean Indoor Air Partnership, addressed Florence Rotary during its Monday, Aug. 18, meeting.

She shared with the Rotarians the current efforts of the Clean Air Partnership to reduce exposure to two primary indoor air pollutants: secondhand smoke and radon gas. The overarching message she delivered is that taking steps toward reducing indoor air pollution can save lives and that the benefits far outweigh the costs.
Social Media

- Facebook
- Twitter
- Instagram

- Can reach large numbers of groups (e.g., young people, women) who are more in tune with electronic communication.
Culturally sensitive messaging: Listen to your community!

Stop smoking for the ones you love.

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Culturally Sensitive Messaging:
Lawrence County “Tree of Life” Quilt

- Designed and created by the Lawrence County Quilt Guild based on focus group themes
- Appliquéd tree in the center of the quilt represents life in Lawrence County.
- Log Cabin and Appalachian Trail motifs in the borders reflect the history of the people living in this region of Kentucky
- Incorporates strong sense of pride about the beauty of the land, and the history, arts, and friendliness of the people of Lawrence County
Summary

• Radon professionals, environmental health practitioners, and tobacco control advocates are in a unique position to work together to prevent lung cancer.

• Providing free radon test kits in a variety of non-traditional community venues (e.g., smoking cessation programs) and “how-to” ways to adopt a smoke-free home (e.g., during radon testing) can motivate individuals to test their homes and seek more information on radon and tobacco smoke.
Summary

• Incorporating personalized and targeted messaging about the synergistic, or combined, risk of exposure to tobacco smoke and radon is an innovative approach to decrease lung cancer and improve overall population health.
Free Radon Continuing Education Course

MODULE OUTLINE

Module 1: Radon and Health
Module 2: Sources of Radon
Module 3: Radon Testing and Mitigation to Protect Health
Module 4: Public Health Responses to Frequently Asked Questions About Radon
Module 5: Radon Policy and What Health Professionals Need to Know
Module 6: What Patients Need to Know about Radon and Summary

https://ky.train.org/DesktopModules/eLearning/CourseDetails/CourseDetailsForm.aspx?courseld=1056655
Questions?

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