Radon and Lung Cancer: A Hidden Health Risk

Tuesday, November 15, 2016

See Cancer Differently ®

What is Radon -222 (radon)?

- Radon is a gas
- It is naturally occurring (outside)
- You can not see or smell it
- It enters buildings primarily from the soil

These particles are easily inhaled and deposited in the lungs where they can damage sensitive lung tissue.
Radon Decay Products

- Highly radioactive particles adhere to lung tissue, where they can irradiate sensitive cells.
- Radiation can alter the cells, increasing the potential for cancer.

What Happens When Radon Decay Products Are Inhaled?

- $^{218}\text{Po}$ and $^{214}\text{Po}$ deliver the radiologically significant dose to the respiratory epithelium.
U.S. Radon Potential

- Based on geology and surveys
- Expected closed building radon (pCi/L):
  - Zone 1: 4.0 and above
  - Zone 2: between 2.0 & 4.0
  - Zone 3: 2.0 and lower
Iowa has highest average radon concentrations in the nation

Only state that is entirely ZONE 1

The EPA’s Radon Action Level of 4 pCi/L is not a health-based guideline

**Radon Concentration**

- **EPA Action Level**: 148 Beq/m³, 4 pCi/L
- **WHO Guidance**: 100 Beq/m³, 2.7 pCi/L
- **U.S. homes (mean)**: 48 Beq/m³, 1.3 pCi/L
- **37 Beq/m³, 1 pCi/L
- **0.4 Beq/m³, 0.4 pCi/L**

**EPA Radon Risk Assessment Results**

- **Estimated Risks at the EPA Action Level (4 pCi/L)**
  - Smokers: 6/100
  - Never Smokers: 7/1000
1. Lung and Bronchus 158,080
2. Colon and Rectum 49,190
3. Pancreas 41,780
4. Breast 40,690
5. Liver and Intrahepatic Bile Duct 27,170
6. Prostate 26,120
7. Leukemia 24,400
8. Lymphoma 21,270
Lung cancer attributable to radon exposure 21,100
9. Urinary Bladder 16,390
10. Esophagus 15,690
11. Other 14,240
12. Kidney and Renal Pelvis 14,260
13. Myeloma 12,650
14. Stomach 10,730

"Statistics are people with the tears wiped away."
Irving Selikoff
The National Comprehensive Cancer Network guidelines recommend LDCT screening beginning at age 50 for individuals with at least 20 pack-years of exposure if they have documented high radon exposure. Screening is not recommended once a person has not smoked for 15 years. Since patients look to their health care provider for guidance on cancer prevention, LDCT screening interviews for eligibility presents a teachable moment to educate the public about the risks posed by smoking and radon even in cases where a person is not eligible for the screening.
Lists of state licensed radon testing and mitigation professionals

- IA Department of Public Health, Radon Program
  - Toll free Hotline: 800-383-5992
  - Web: http://www.idph.state.ia.us/Radon/

- National Radon Hotline
  - 800-SOS-RADON

Radon Detectors

Linn County Health Department
- Web: http://www.linncounty.org/676/Ordering-Radon-Kit
- Phone: 319-892-6000

National Radon Hotline
- Phone: 800-SOS-RADON

American Lung Association
- Web: http://www.healthhouse.org/radon/testkit.cfm

Continuing education credits will be available for reviewing the Guide and watching video.
Questions?

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