

## **January is National Radon Action Month.**

**Radon is the second leading cause of lung cancer,<sup>1</sup> and smoking and secondhand smoke exposure in combination with radon greatly increases the risk of lung cancer.<sup>2,3</sup>**

### **What is radon?**

Radon is a naturally occurring radioactive soil gas that is colorless, odorless and tasteless.<sup>4</sup>

Radon can enter any type of building - homes, offices, and schools - through cracks in the basement or foundation.<sup>2</sup> Through decay, radon breaks down into sticky particles which can be inhaled and trapped in the lungs.<sup>5</sup> Over time, these particles break down and release small bursts of energy that damage lung tissue.<sup>5</sup>

### **Did you know...?**

- Radon levels are measured by units of radioactivity per volume of air called picocuries per liter (pCi/L).
- Living in a home with a radon level of 4 pCi/L is like getting 200 chest x-rays per year.<sup>5</sup>
- Living in a home with a radon level of 20 pCi/L is like smoking two packs of cigarettes per day.<sup>5</sup>
- Radon is linked to 15,400 to 21,800 lung cancer cases in the United States each year.<sup>4</sup>

### **What about smoking and radon?**

- If you smoke and/or are exposed to secondhand smoke and your home or workplace has high levels of radon, the risk of getting lung cancer is especially high.<sup>6</sup>
- If exposed to 4 pCi/L of radon over a lifetime, 7 per 1,000 of those who never smoked would develop lung cancer versus 62 per 1,000 smokers.<sup>2</sup>
- Among never-smokers, radon exposure may be more harmful for those exposed to secondhand smoke.<sup>7</sup> Secondhand smoke particles linger in the air and are small enough to be inhaled directly into the lungs. The combination of radon attached to the fine particles from secondhand smoke greatly increases the likelihood of lung cancer. This combination makes it easier to breathe in the particles and easier for those particles to stick to the lungs.<sup>2</sup>

## How are we exposed to radon?

- Radon comes from the natural, radioactive breakdown of uranium in soil, rock, or water.
- Radon enters homes and other buildings through cracks in foundations, as well as sump pumps and other drainage systems and can become trapped in the indoor air.

## What can we do about radon?

- The only way to know if a home or other building has a radon problem is to test it. Here are some ways that test kits can be obtained:
  - Free at many local health departments:  
<http://chfs.ky.gov/dph/info/phps/Radon+County+Information.htm>.
  - Free from the Kentucky State Radon program:  
<http://chfs.ky.gov/dph/info/phps/radongas.htm> or (502) 564-4856
  - Purchase at local home improvement stores for \$15-\$25.
- Radon testing and mitigating requires technical knowledge and special skills. It is recommended that only certified mitigation professionals test and mitigate for radon.<sup>2</sup> Find a list of certified testers (mitigators) at <http://www.radongas.org/>

## Can radon exposure be prevented?

- Home builders can help prevent radon exposure before it starts by adding a Radon Resistant New Construction (RRNC) passive system during construction. This system can be easily activated by a certified mitigator if high radon levels are found in the home.
- RRNC costs approximately \$600-\$800 for a single family home, compared to \$1,200 to \$2,500 for mitigation of an existing home.

## Policy Recommendations to Prevent Exposure<sup>8</sup>

1. Increase the Percent of Population Covered by Comprehensive Smoke-free workplace Policies
2. Ensure Certification of Radon Testers and Mitigators and Enact Policy to Promote Radon Testing.

**This information is adapted from the University of Kentucky Clean Indoor Air Partnership's new publication *Radon: What the Public and Policymakers Need to Know*** (<http://www.mc.uky.edu/tobaccopolicy/ProjectTeam/Radon.HTM>). See page 7 for the average radon levels by county in Kentucky. For hard copies, please contact Mike Bossick, PhD., Radon Awareness Program, University of Kentucky, at 859-323-4587 or [michael.bossick@uky.edu](mailto:michael.bossick@uky.edu)

## Other Resources:

Visit <http://www.epa.gov/radon/nram/activities.html#National%20Map> for a planning kit, resources, and examples of past activities used to educate consumers. Plan an activity that links Radon and Secondhand Smoke and submit it to the website for others to see!

Encourage your clients, colleagues and other contacts to visit [Radon | Indoor Air Quality | US EPA](#) to watch a 4 minute video and learn more about radon!

## References

1. U.S. Department of Health and Human Services. Surgeon General releases national health advisory on radon. 2005; <http://www.surgeongeneral.gov/pressreleases/sg01132005.html>. Accessed December 2, 2009.
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4. Zeeb H, Shannoun F, eds. WHO handbook on indoor radon: A public health perspective. Geneva, Switzerland: World Health Organization; 2009.
5. U.S. Department of Health and Human Services, Public Health Service. Toxicological Profile for Radon. Atlanta, GA: Agency for Toxic Substances and Disease Registry; 1990.
6. Alberg, AJ, Samet, JM. Epidemiology of lung cancer. *Chest*. January 2003; 123 (1 Suppl): 21S-49S.
7. Lagarde F, Axelsson G, Damber L, Mellander H, Nyberg F, Pershagen G. Residential radon and lung cancer among never-smokers in Sweden. *Epidemiology*. 2001;12(4):396-404.
8. Cole, L.K.J., Wagner, K., Darville, A., Slone, N., & Hahn., E.J. (Fall 2009). Primary prevention of lung cancer in Appalachia through state and local policy change. Appalachia Community Cancer Network Policy Brief #2.