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Assessment of Risks from Radon in Homes

The Agency has updated the estimates of lung cancer risks from indoor radon based on the National Academy of Sciences' (NAS) latest report on radon, the Biological Effects of Ionizing Radiation (BEIR) VI Report (1999). EPA worked closely with the Science Advisory Board (SAB), an independent panel of scientific experts, to determine how best to apply the risk models developed by the BEIR VI committee. The SAB's advice and recommendations were incorporated modifying and extending the methods and approaches used in BEIR VI to construct a single model yielding results midway between the results obtained using the two models preferred by the BEIR VI committee. The Agency's updated calculation of a best estimate of annual lung cancer deaths from radon is about 21,000 (with an uncertainty range of 8,000 to 45,000), which is consistent with the estimates of the BEIR VI Report. A single risk model also permitted the Agency to calculate a numerical estimate of the risk per unit exposure [lung cancer deaths per working level month (WLM)] which will be used to update estimated lung cancer risks from radon in various publications, including "A Citizen's Guide to Radon." The full text of the updated risk assessment, "**EPA Assessment of Risks from Radon in Homes**" (EPA 402-R-03-003) is available as a downloadable Adobe Acrobat PDF file - www.epa.gov/radiation/docs/assessment/radon_in_homes.pdf

The following is an updated chart of the lifetime risk of lung cancer death per person from radon exposure in homes (excerpted from the updated radon risk assessment).

Radon Level ^a	Lifetime Risk of Lung Cancer Death (per person) from Radon Exposure in Homes ^b		
	Never Smokers	Current Smokers ^c	General Population
pCi/L			
20	36 out of 1,000	26 out of 100	11 out of 100
10	18 out of 1,000	15 out of 100	56 out of 1,000
8	15 out of 1,000	12 out of 100	45 out of 1,000
4	73 out of 10,000	62 out of 1,000	23 out of 1,000
2	37 out of 10,000	32 out of 1,000	12 out of 1,000
1.25	23 out of 10,000	20 out of 1,000	73 out of 10,000
0.4	73 out of 100,000	64 out of 10,000	23 out of 10,000

a Assumes constant lifetime exposure in homes at these levels.
 b Estimates are subject to uncertainties as discussed in Chapter VIII of the risk assessment.
 c Note: BEIR VI did not specify excess relative risks for current smokers.

Additional resources related to the updated risk assessment include:

- a [Summary Fact Sheet](#) on the updated risk assessment
- updated [Radon Frequent Questions](#)
- [The National Academy of Sciences BEIR VI Report](#)

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URL: http://www.epa.gov/iaq/radon/risk_assessment.html