

# Radon and lung cancer risk

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## 1 Radon is responsible for 16% of lung cancer deaths in Canada, or more than 3000 deaths per year<sup>1</sup>

Long-term inhalation of  $\alpha$  particle radiation increases the lifetime relative risk of lung cancer by 16% for every 100 Bq/m<sup>3</sup> and has a synergistic effect with other risk factors for lung cancer.<sup>2</sup> At the 200 Bq/m<sup>3</sup> upper limit in the Canadian guideline, the lifetime risk of lung cancer is 17% for people who smoke tobacco and 2% for people who do not.<sup>3</sup>

## 2 There are no “radon-free” areas in Canada<sup>4</sup>

Radon is drawn from soil into buildings owing to pressure differences between the ground and the foundation. Indoor accumulation varies widely, depending on location, building characteristics, and human and mechanical actions within the building. About 20% of homes across Canada exceed the 200 Bq/m<sup>3</sup> guideline, and 47.5% exceed the World Health Organization–recommended reference level of 100 Bq/m<sup>3</sup>.<sup>2</sup>

## 3 Health Canada recommends testing every home for radon over at least 3 months during the cold weather heating season<sup>3</sup>

Testing is easy with the use of a long-term  $\alpha$  track detector that can be purchased for \$30–\$60, which includes laboratory analysis. Community and publicly funded programs offer radon detectors at lower cost, or sometimes for free (Appendix 1, available at [www.cmaj.ca/lookup/doi/10.1503/cmaj.230110/tab-related-content](http://www.cmaj.ca/lookup/doi/10.1503/cmaj.230110/tab-related-content)).

## 4 Radon levels can be reduced by more than 80%<sup>4</sup>

Reducing radon levels can save lives. A certified Canadian National Radon Proficiency Program provider can determine the best radon reduction method. However, mitigation costs of \$3000–\$5000 can be prohibitive for many Canadians. Increasing ventilation can achieve modest reductions of radon when levels are at or slightly above 200 Bq/m<sup>3</sup>.

## 5 Physicians should suggest that patients test their home and workplace for radon

Physicians can play an important role in the prevention of radon-related lung cancer by increasing awareness and motivating action.<sup>5</sup> Discussions with young adults may be most valuable as they make long-term plans to settle into a home and job. Further resources for physician and patients are provided in Appendix 1.

## References

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