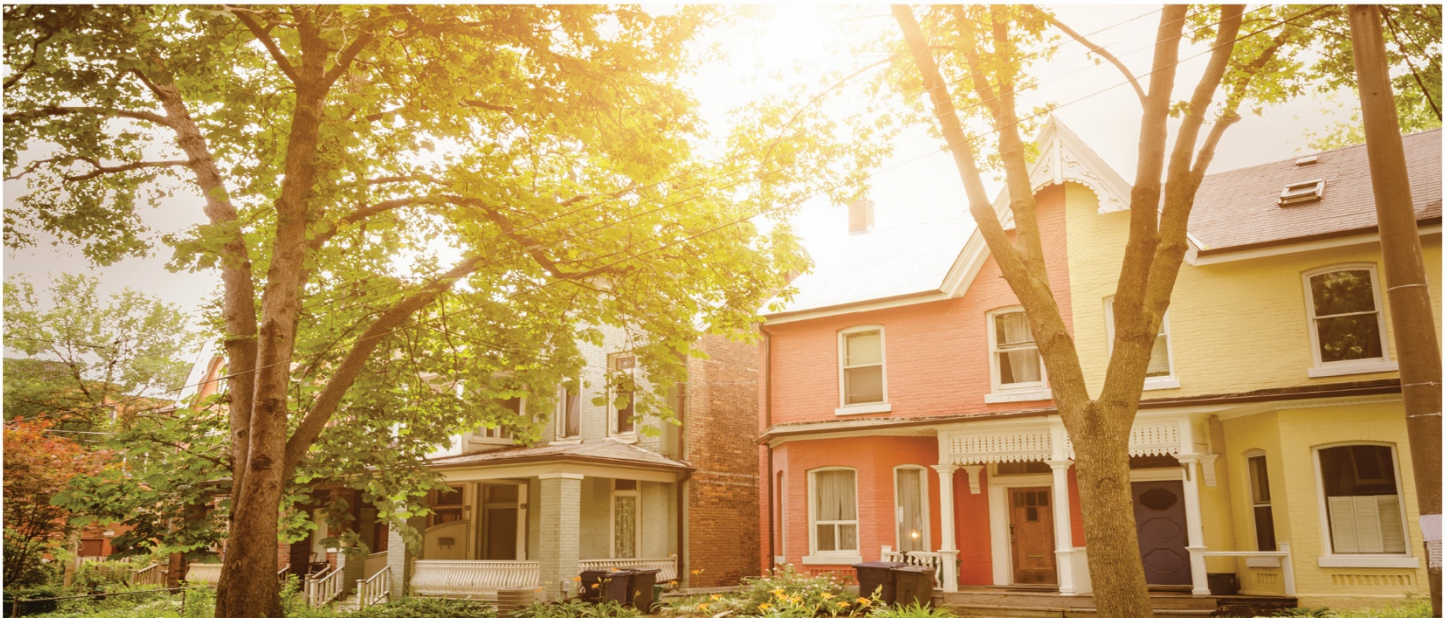
Cancer Care Ontario

Ontario Cancer Facts



NEWSLETTER | JUNE 2017

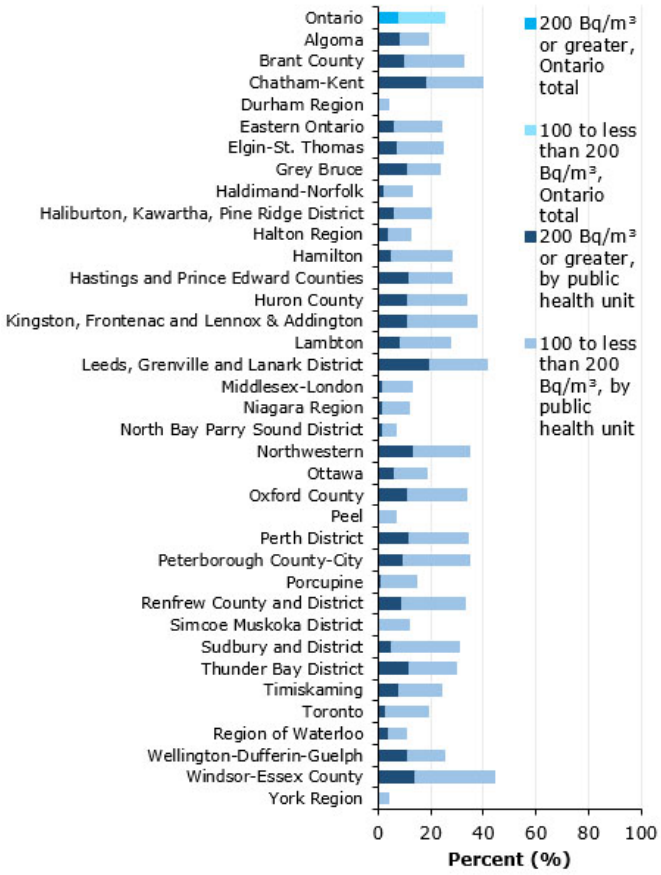
RISK OF RESIDENTIAL RADON EXPOSURE VARIES GEOGRAPHICALLY

Radon concentrations vary across geographic regions and are usually higher in areas with large amounts of uranium in the ground.[1] Radon is a naturally occurring radioactive gas released into the air during the decay of uranium in soil and rock, and is an established cause of lung cancer. It can accumulate to high concentrations in basements and lower floors of homes and buildings. There is no known safe level of radon exposure and the risk of lung cancer increases with greater levels of exposure.[2]

Radon concentrations in the air are measured in units of becquerels per cubic metre of air (Bq/m³)—the higher the becquerels, the higher the levels of radon gas in the air. The Government of Canada Radon Guideline for average annual radon concentrations in a dwelling is 200 Bq/m³.[3] If radon concentrations are higher than 200 Bq/m³, Health Canada recommends taking remedial action to lower them.[3] However, the World Health Organization (WHO) recommends remedial action at an average annual radon concentration of 100 Bq/m³,[4] which is more health protective than taking action at 200 Bq/m³. Outdoor levels of radon usually range from 10 to 30 Bq/m³.[5]

From 2009 to 2013, 3,954 homes in Ontario were surveyed[6] for radon. The survey found that 25.2 percent of homes had radon concentrations equal to or greater than the recommended WHO remediation

Percentage of tested homes in Ontario with radon concentrations of 100 Bq/m³ or greater, by public health unit, 2009–2013



Source: Cross-Canada Survey of Radon Concentrations in Homes, Final Ontario Dataset, 2013 (Health Canada).
Notes: The minimum detection limit for a three-month radon test is 15 Bq/m³ and for data points below 15 Bq/m³, a value of 8 Bq/m³ (roughly half the detection limit) was substituted to allow calculation of medians to be performed; a total of 662 homes in Ontario (16.7% of all samples) had radon concentrations below 15 Bq/m³.

HIGHLIGHTS

- Radon is an established cause of lung cancer and concentrations vary across geographic regions.
- Radon gas can accumulate to high concentrations in basements and lower floors of homes and buildings.
- About 25 percent of Ontario homes surveyed from 2009 to 2013 had radon concentrations that require remedial action according to the World Health Organization.

action level of 100 Bq/m³ and 8.2 percent had radon concentrations equal to or greater than the recommended Health Canada remediation action level of 200 Bq/m³. A 2014 study concluded that more than two times as many lung cancer deaths could be prevented each year in Ontario if all homes with radon levels above 100 Bq/m³ were remediated instead of only remediating homes with concentrations above 200 Bq/m³.[4,5] The three Ontario public health units that had the highest percentage of homes with radon concentrations of 100 Bq/m³ or greater were Windsor-Essex County (44.1 percent); Leeds, Grenville and Lanark District (41.7 percent); and Chatham-Kent (39.8 percent).

For more information about the prevention and remediation and the supplementary table for the figure, see the Prevention System Quality Index report available at cancercare.on.ca/psqi/.

References

1. Health Canada. Radon frequently asked questions. Where in Canada are radon levels the highest? [Internet]. Ottawa: Health Canada; 2014 [updated 2014 Jul 30; cited 2016 Apr 13]. Available at http://www.hc-sc.gc.ca/ewh-semt/radiation/radon/faq_fq-eng.php#high.
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4. World Health Organization. WHO handbook on indoor radon, a public health perspective. Geneva: World Health Organization; 2009.
5. Peterson E, Aker A, Kim J, Li Y, Brand K, Copes R. Lung cancer risk from radon in Ontario, Canada: how many lung cancers can we prevent? Cancer Causes Control. 2013 Nov;24(11):2013-20.
6. Health Canada. Cross-Canada survey of radon concentrations in homes, final report. Ottawa: Health Canada; 2012.

FOR MORE INFORMATION

- About radon testing and remediation in your home, visit takeactiononradon.ca.
- Regarding radon measurements across Canada, see carexcanada.ca/en/radon/environmental_estimate/#provincial_tables_and_maps and http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/survey-sondage/index-eng.php

CITATION

Cancer Care Ontario. Cancer Fact. Residential radon risk varies geographically. June 2017. Available at www.cancercare.on.ca/Cancerfacts.

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