A new radon guideline for dwellings in Canada—How would this affect BC?

Health Canada, in collaboration with the provinces and territories, has proposed lowering the national radon guideline for dwellings. This initiative provides a timely opportunity to revisit an important though not widely known health risk. It is estimated that radon accounts for about 10% of the lung cancer cases in Canada.[1] It is the major risk factor for non-smokers and significantly enhances the risk for those who smoke. In BC, elevated levels of radon in homes and other buildings are confined to the interior regions of the province. The new guideline in BC would not change the areas of concern in the province but would lead to a significant increase in the number of homes requiring corrective action. The BCCDC provides information on how to test for radon and methods to reduce exposure.

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Issues

Health Canada's announcement in April 2006 proposes that the current guideline level be lowered by a factor of 4. The proposal is based on a report of the Radon Working Group to the Federal-Provincial-Territorial Radiation Protection Committee (FPTRPC)[1] (see media release at www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2006/2006_18_e.html).

One issue driving the need for change is that Canada's current guideline (800 Bq/m3) is out of step with most other countries, with many using 200 Bq/m3. In 1993 the International Commission on Radiological Protection[2] recommended that action level values be set between 200 to 600 Bq/m^3.

Another factor supporting the change is the recent finding of an association between radon and lung cancer at levels down to about 100 Bq/m^3 in analyses of pooled data from earlier European and North American residential studies. The work of Krewski and colleagues[3] (North American data) and Darby and colleagues [4] (European data) give comparable findings that show an excess relative risk of around 0.1 per 100 Bq/m^3. The FPTRPC report[1] estimates that about 10% of all lung cancer deaths are radon related (i.e., 1589 of 15 439, using 1997 data from Statistics Canada). Further, the individual lifetime risk for a smoker exposed to a radon level at 200 Bq/m^3 is estimated to be about 17% (i.e., a greater than 1 in 6 chance of developing lung cancer) due to a synergistic effect of tobacco smoke and radon. For a non-smoker, the risk is 2% (a 1 in 50 chance).

Impact on BC

Data on testing in BC (see www.BCCDC.org/content.php?item=69) show that elevated radon levels are confined to the interior regions of the province (i.e., east of the Coast Mountain range). These are the regions where smoking is more prevalent. Around 1% to 2% of the 200 000 single-family dwellings in these communities exceed the current action level. Ten times as many homes would require corrective action under the new guideline. Testing for radon in homes in the Interior is strongly recommended and a few "hot spots" have been found where it is essential.

An internal BCCDC report[5] shows the cost effectiveness of a program for testing and corrective action at different action level values to deal with BC's radon situation. The cost to avert one lung cancer case would be in excess of $0.5 million. This information is useful in supporting public health policy decisions for adopting such a program.

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