



**Radiological Protection Institute of Ireland**

**An Institiúid Éireannach um Chosaint Raideolaíoch**

## Health Risks due to Exposure to Radon in Homes in Ireland

### The Implications of Recently Published Data

#### Joint Statement by the Radiological Protection Institute of Ireland and National Cancer Registry of Ireland

##### Executive Summary

This document summarises the evidence that links exposure to radon in homes with an increased risk of lung cancer. Using the most recent risk estimates derived from epidemiological studies carried out abroad, the risk associated with radon exposure in homes in Ireland is derived. The relationship between exposure to radon and cigarette smoking is also discussed.

On the basis of studies of uranium and other underground miners occupationally exposed to radon, it was previously estimated that 150-200 lung cancer deaths each year in Ireland could be linked to radon. This equates to 10% to 15% of all lung cancer deaths.

Recently, the results of a joint analysis of 13 individual epidemiological studies of residential radon exposure in nine European countries was published. The principal conclusion reached is that, while the underlying lung cancer risk for active smokers was considerably higher than for lifelong non-smokers, the risk to both groups increased by approximately 16% for every 100 Bq/m<sup>3</sup> of radon exposure in the home. In addition, this risk seems to apply even at low radon concentrations, typically below the Reference Levels that apply in a number of countries. The risk to active smokers from radon was observed to be approximately 25 times greater than the risk to lifelong non-smokers.

When applied to Ireland, the risk estimates from this European study provide a best estimate value of approximately 13% of all lung cancer deaths every year in Ireland being caused by radon. This corresponds to 195 lung cancer deaths, of which 91.5% (178) would be observed in active and ex-smokers and 8.5% (17) in lifelong non-smokers. Thus the majority of all lung cancers will be observed in people whose lungs have been damaged by tobacco smoke. This includes ex smokers, who remain at increased risk from radon for a number of years after they have stopped smoking.

The Institute considered if, in light of the most recent scientific evidence, there was a need to reduce the national Reference Level of 200 Bq/m<sup>3</sup> for radon exposure in the home. It found no justification to revise the national Reference Level as it represented a level of risk to the population as a whole comparable to

other everyday hazards. A diversion of resources to identifying and remediating those homes with radon concentrations in the range 100 to 200 Bq/m<sup>3</sup> is unlikely to be justified.