

RADON: A CASE FOR PUBLIC PERSUASION

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Abstract

The importance of reducing individual exposure to elevated levels of radon is well understood by radiation protection specialists, and successful methods of locating the areas most at risk have been developed. However, less attention has been paid to informing the general public about the health risks and encouraging those in radon-prone areas to take action. In the United Kingdom, techniques have been developed to persuade householders in high radon areas to take advantage of a Government scheme that provides free long-term measurements of radon in the home. Improvements in the methods of contacting householders in the target areas and in the presentation of the facts has resulted in a twofold increase in the rate of take-up of measurements since the first large-scale surveys.

Introduction

In 1990, the National Radiological Protection Board recommended to the Government a strategy to tackle the domestic radon issue ⁽¹⁾. The Government accepted the advice and commenced a programme to identify the majority of homes with elevated levels by the year 2000 ^(2,3). The plan, based on the concepts of a radon Action Level, set at 200 Bq m⁻³, and the designation of radon Affected Areas, is consistent with the recommendations of ICRP⁽⁴⁾. In addition, provision was made by the Government to fund long-term radon measurements in the homes most at risk. The standard measurement method is to install two passive integrating radon monitors in each home to be tested, one in the living area and one in a bedroom.

NRPB has designated radon Affected Areas in several parts of the UK and, on behalf of the Government, carried out large-scale surveys in those parts most at risk ^(5,6,7,8,9). The initial objective of these surveys has been to encourage householders to take up the offer of free radon measurements in their homes. The outcome is the identification of dwellings above the Action Level, the first step towards the ultimate objective of persuading householders to carry out remedial measures in their homes. This reduces the high radiation doses received by the householder, his immediate family, and subsequent occupiers of the dwelling. It is estimated that there are some 100,000 dwellings above the Action Level in the UK.

Identification of households at risk

The methodology used to define radon Affected Areas in the UK is based on assessing the risk of dwellings being at or above the Action Level by 5 km grid squares of the Ordnance Survey Grid ⁽¹⁰⁾. The technique results in an estimate of the percentage of dwellings in each grid square that will exceed the Action Level. The squares are ranked in descending order of probability to give a listing of the most radon-prone areas. The addresses of all dwellings in each square are obtained from the Post Office Address File (PAF) maintained by the Post Office and available on CD-ROM. These addresses are used in postal radon campaigns as discussed below. The PAF, which is regularly updated, also provides information on local council and health authority districts.

Contacting the householders

The first large-scale offers of free measurements to householders were made using a specially designed leaflet delivered direct to every dwelling by the normal mail. The leaflet gave simple facts about radon and the free measurement scheme and contained a small form to apply for the test. The householder was asked to complete the form with his name and address and return it in an envelope to NRPB at his own expense. Posters advertising the scheme were distributed to local authorities for display in council offices, libraries, and so on. Further supplies of the leaflet were also made available at these locations.

Subsequent campaigns, in different parts of the country, used similar leaflets but these were enclosed with a letter individually addressed to the householder. The individual address was already printed on the reply form.

To apply for the test, the householder needed only to complete the form with his name and return it to NRPB in a pre-paid and pre-addressed envelope.

In the final campaign reported here, in parts of the English county of Somerset, an extra leaflet was included in the package sent to householders. This leaflet, prepared by the local council and health authorities, contained a strong anti-smoking message as well as encouraging the householder to apply for a free radon measurement. The local authorities also organised a vigorous media campaign to coincide with the mailing of the first batch of letters.

The response

The difference in the response rates to these techniques is quite pronounced as illustrated in the table. The most striking point is the high response rate compared with leaflet campaigns on other topics when a response of a few percentage might be expected. Even in the early campaigns in Cornwall, Devon, Derbyshire and Northamptonshire, when the householder received only the leaflet and was required to provide an envelope and pay the return postage, the response rate was over 10%. When the leaflet was delivered in an envelope addressed to the occupier at an individual address, a return envelope provided and the return postage pre-paid, the response rate doubled to 20% or more as demonstrated by the second campaigns in Northern Ireland and Somerset. A further significant increase in the response rate appeared when the mailing was accompanied by a media campaign as was the case in the Scottish regions and in the first Somerset mailings. However, the responses from the two campaigns in both Somerset and in Northern Ireland indicate that the effect of media coverage is quite short-lived and that the response rate drops back to a lower rate once the initial media interest wanes.

Conclusions

Positive response rates of around one in four have been achieved with carefully prepared literature and the provision of return stationary with pre-paid postage. Local media coverage increases the number of positive replies to almost one in three. The same approach could be used to maintain contact with householders with elevated radon levels so as to encourage them to undertake remedial action.

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Table. Response rates to large-scale offers of free radon measurements

Area	Technique	Number sent	Positive replies	
			Number	%
Cornwall & Devon (first campaign)	Leaflet alone	640000	77000	12
Derbyshire & Northamptonshire (similar approach)	Leaflet alone	350000	38500	11
Grampian & Highland Region (concurrent LA campaign)	Leaflet, letter and return envelope	2260	720	32
Northern Ireland I (within a year of designation)	Leaflet, letter and return envelope	20900	5100	24
Northern Ireland II (over a year since designation)	Leaflet, letter and return envelope	26700	5500	20
Somerset I (concurrent media campaign)	Leaflet, letter and return envelope	40000	12400	31
Somerset II (no concurrent media coverage)	Leaflet, letter and return envelope	60000	14300	24

References

- 1 NRPB. Board statement on limitation of human exposure to radon in houses. Doc. NRPB, 1, No. 1, 15-16 (1990).
- 2 House of Commons Select Committee on the Environment. Sixth Report, Indoor Pollution, House of Commons Paper 61, Session 1990-91. London, HMSO (1991).
- 3 Parliament. The Government's response to the sixth report from the House of Commons Select Committee on the Environment. London, HMSO, Cmnd 1633 (1991).
- 4 ICRP. Protection against radon-222 at home and at work. ICRP Publication 65, Ann. ICRP, 23, No 2 (1993).
- 5 NRPB. Radon affected areas: Cornwall and Devon. Doc. NRPB, 1, No. 4, 37-43 (1990).
- 6 NRPB. Radon affected areas: Derbyshire, Northamptonshire and Somerset. Doc. NRPB, 3, No. 4, 19-28 (1992).
- 7 NRPB. Radon affected areas: Scotland. Doc. NRPB, 4, No. 6, 1-8 (1993).
- 8 NRPB. Radon affected areas: Northern Ireland. Doc. NRPB, 4, No. 6, 9-15 (1993).
- 9 Kendall, G M, Miles, J C H, Cliff, K D, Green, B M R, Muirhead, C R, Dixon, D W, Lomas, P R and Goodridge, S M. Exposure to radon in UK dwellings. Chilton, NRPB-R272 (1994) (London, HMSO).
- 10 Miles, J C H. Mapping the proportion of the housing stock exceeding a radon reference level. Radiat. Prot. Dosim., 56, 207-210, (1994).