

ALERT BUT DON'T ALARM: RADON RISK COMMUNICATION STRATEGIES OF A UK MITIGATOR

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Abstract

Some 2000 people die from radon related lung cancer in the UK every year.¹ Despite this, awareness of radon amongst the general public and understanding of the risks amongst property professionals remains low. Communication from official sources has failed to impact significantly upon awareness levels in the past. It has therefore fallen to commercial organisations to take action to raise awareness and understanding in a proactive manner. A number of approaches have been tailored to target specific audience sectors, including technical seminars for property professionals and creation of easy-to-understand cartoons for those searching for information on the internet. Care is taken in the language used to communicate risk to avoid accusations of scaremongering. The underlying philosophy that has been taken when developing risk communication campaigns is the need to alert individuals to the risks of radon but not to alarm them. This paper explores the channels used and discusses methods found to be most and least effective.

Introduction

The UK radon industry has been established for over 25 years, however awareness of radon gas amongst building professionals and particularly members of the public remains relatively low. This is despite the existence of several Government departments and advisory bodies, robust legislation for workplace risk assessments, mapping of risk areas and building codes for radon protection in new buildings.

Public Health England (PHE) is 'the UK's Primary authority on radiation protection' and is an executive agency of the Department of Health.² Between 2005 and 2013, this role was carried out by the Health Protection Agency (HPA) however in 2013 PHE was formed when a number of existing organisations, including HPA, were brought together. HPA had itself absorbed the National Radiological Protection Board (NRPB) in 2005.

The NRPB first issued formal advice on radon in 1987 and the UK Government subsequently initiated a programme to determine the means of reducing high exposure in existing homes and reducing it in future ones (NRPB, 1987).³ In 1990 the NRPB adopted the concept of the 'Affected Area' where 1% or more of homes were above the Action Level (a reference level where remedial action is advised when exceeded), which was set at 200 Bq/m³, and in 1996 NRPB released an indicative map of radon Affected Areas in England and Wales. This map was based upon test results obtained from measurements in almost 250,000 homes over 20 years (NRPB, 1996).⁴

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As more data has become available, these maps have been updated. The most recent map was published in 2007 and is based upon the results of measurements taken in 460,000 homes.⁵

Each set of maps is divided into colour-coded bands showing the estimated probability that a home in that location will contain radon levels in excess of the Action Level. Figure (1) below shows the 1996 map and Figure (2) shows the 2007 map.

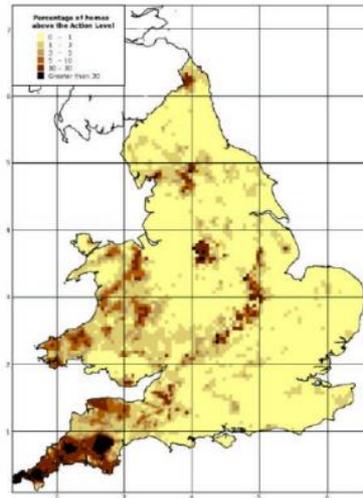


Figure (1): Overall map of radon Affected Areas in England and Wales, NRPB 1996

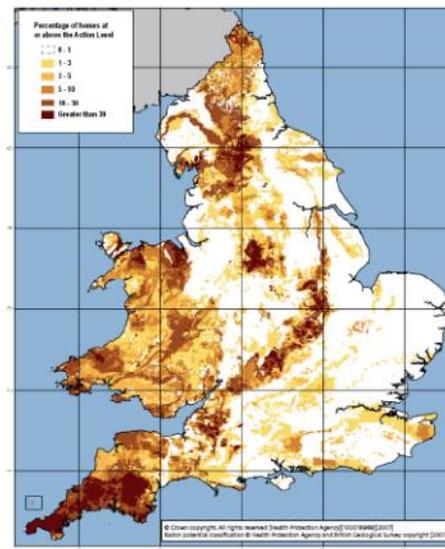


Figure (2): Overall map of radon Affected Areas in England and Wales, HPA 2007

The Health and Safety Executive (HSE) is the official independent watchdog and regulator acting in the public interest to reduce work-related death across Great Britain's workplaces.⁶ HSE works under a framework agreement with the UK Government's Department for Work and Pensions (DWP) and is represented in Parliament by a DWP Minister.

Under the Health and Safety at Work Act 1974 and the Management of Health and Safety at Work Act 1999, all UK employers are required to carry out a radon risk assessment for their premises. The risk assessment should include radon monitoring if the workplace is located in an Affected Area or if it has a basement or below-ground workspace (regardless of geographic location).

The Building Research Establishment (BRE) was a Government-funded research laboratory before being privatised in 1997. Now operating as an ‘independent and impartial research-based consultancy, testing and training organisation’⁷ BRE has written several guidance documents about radon protection for new buildings and extensions, principally document BR211: Radon - Guidance on protective measures for new buildings.⁸ The current UK Building Regulations refer to the guidance contained in BR211,⁹ which includes a set of maps indicating areas of the country where various levels of radon protection (none, ‘basic’ and ‘full’) are required.

propertECO is an independent radon testing provider and mitigation contractor covering the whole of the UK. As a commercial organisation, propertECO operates to generate a return on the shareholders’ investment however the company’s directors have a strong personal interest in radon and recognise that by engaging with stakeholders, change can be affected that will simultaneously save lives and grow the market.

Lack of radon awareness amongst UK general public

Following an extensive household measurement campaign by NRPB in the early 1990s, a study of the public responses was carried out¹⁰ (Lee et al 1994). The study found that many householders did not even read the information pamphlets that were sent. Of those that applied for a measurement to be taken and were subsequently informed that the radon concentration was above the action level, only 3-5% carried out effective remediation. Lee *et al* concludes by stating “It is vital to continue to educate the general public in an attempt to improve the remediation rate”.

Some 20 years later many would argue that public awareness has moved on very little. Anecdotal evidence received conversationally certainly indicates that, unless somebody has had specific cause to be alerted to the issue (e.g. a property transaction), they are unaware of radon or its risks.

Lack of radon awareness & understanding amongst UK property professionals

Whilst most building professionals (e.g. surveyors, architects, engineers, solicitors, facilities managers and estate agents) in the UK have at least heard of radon, many do not appreciate a) how widespread the issue is and b) the risk to human health associated with radon exposure.

Many building professionals believe that radon is limited to certain geographic areas, a misconception that stems from historical data and reports focusing only on the South West of England, and which to a certain extent has been perpetuated by the existence of indicative radon maps.

Many large cities that lie outside of designated Affected Areas contain a high proportion of properties with occupied basements. Guidance from HPA states that “...high radon concentrations can be found in properties with basements anywhere in the country, regardless of Affected Area status” (Gooding, 2007).¹¹ There is very little recognition of this fact.

Anecdotal evidence of the lack of awareness and understanding of radon amongst professionals was collected as part of a research paper (Burt, 2014).¹² Responses from Local Authority Building Control Managers to an invitation to attend a free seminar about radon gas included “I don’t think it is a very good topic for a seminar... Can’t you do something more relevant?” and “No, it is unlikely that anyone would attend. It’s not really of interest”. Worryingly, these Building Control Managers were operating in an area where basements are almost omnipresent and which is densely populated. Their colleagues in the Environmental Health department of the same Authority have delegated workplace compliance duties from HSE. Further, Burt’s research included an interview with representatives of the Royal Institute of Chartered Surveyors (RICS). RICS is an international professional body with over 100,000 members which describes itself as being a body to “represent everything professional and ethical in land, property and construction”.¹³ The interviewee was asked about RICS’ guidance on radon and responded “We looked up the guidance notes on hazards on our database but there are no guidance notes on radon. Radon is only really mentioned as a side note. RICS is a chartered body which has the public interest at heart. There is a guidance note for Japanese knotweed for example. RICS is a source for members or for industry, for anything we can help them with. For instance anything hazardous or relating to flooding or subsidence or trees is of concern to us. I think the flooding risk is more important than radon.”

Raising awareness amongst professionals

Several years ago, one of the best ways of communicating a message to a specific group of professionals was via editorial in a professional journal. proptECO have supplied detailed technical editorial to several of these journals, including Building Engineer, RICS Building Control and Safety & Health Practitioner.

Following the publication of these articles, a number of enquiries were usually received from readers requesting further information, however the true reach and impact cannot be ascertained. In line with other print media, it would not be unreasonable to expect that overall readership of such journals is in decline with increasing numbers of people looking to online resources and social media for access to information relevant to their professions.

In the UK, many professional bodies require members to undertake Continuing Professional Development (CPD) throughout their membership and there is normally a minimum number of hours’ worth of formal learning required each year. This creates a demand for technical seminars which proptECO has been able to capture.

A seminar entitled “Radon Gas: Risks, Regulations & Remediation” lasting one hour has been written and developed over the last few years to provide information in an easy to understand and engaging format. The seminar uses PowerPoint slides that have minimal bullet points, lots of illustrations and several videos. Video content includes several clips from public service announcements created in other countries to highlight the risk of radon, such as those produced by the United States Environmental Protection Agency.¹⁴

Attendees are told at the start of the seminar that an electronic copy of the slides will be distributed after the event; it has been found that this provides a good compromise between ensuring audience members do not miss information as they are too busy writing everything down and preventing them from being distracted from the seminar by flipping through a printed handout.

It is important that the content of the seminar is of a technical and informative nature and that any commercial references are kept to a minimum to ensure that it is not viewed as a 'sales pitch', as this would detract from the message of the seminar.

Equally important is to avoid accusations of scaremongering. Scaremongering can lead to disbelief and apathy and can taint a company's reputation. When discussing the risks associated with radon exposure, including number of lung cancer deaths per year, the information is presented in a way intended to alert attendees to the risks but not alarm them.

Interestingly, at the start of seminars it can be observed from their demeanour that many attendees are probably attending simply to gain the necessary number of CPD credits and have no particular interest in the subject matter, however as the seminar progresses and more information about the widespread risks of radon is disseminated, a noticeable shift in attendees' interest and engagement can be observed. This is often demonstrated by the number of questions asked and level of discussion generated at the end of the seminar.

Educational seminars to property professionals are an effective way of raising radon awareness not only amongst those who have attended the seminar but to a much wider audience. As an example, propertECO were invited to deliver a seminar to a regional group of the Royal Institute of British Architects (RIBA). One attendee, from a FTSE100 company contacted propertECO shortly after the event to request an 'in-house' seminar for her colleagues in the company's new build department as she felt that the company needed to review its building policies urgently. The seminar was repeated to the 10 architects & designers in-house, and a manager from the company's repair and maintenance division also attended. The repair and maintenance manager subsequently requested further information about the company's responsibilities as an employer for carrying out radon risk assessments and requested that the seminar be repeated to his team of 18 regional maintenance managers. Following this, the company has decided to embark on a programme of radon risk assessments throughout its premises, which include over 1000 workplaces with over 55,000 employees. Information about radon will be disseminated from the company's head office to employees to explain why and how radon monitoring will be taking place. Advice will also be given about home radon testing, which could lead to a large number of residential premises being tested as a result.

Another useful way of engaging with other professionals is via the use of social media, and in particular, Twitter. Many non-users of Twitter wrongly believe it is simply a platform for sharing inane details about day-to-day life, however an article on technology news website TechCrunch sums up that "Yes, we can share what we're having for breakfast or what we watch on TV. But at its best, Twitter is a tool for distilling understanding of the world into the most digestible format possible. (Constine, 2013).¹⁵

Twitter can be used to engage directly with other professionals or professional bodies by 'mentioning' them in that Tweet. This is a useful way of responding to a question that may

have been asked. It can be used as a tool for initiating contact with stakeholders, which can then be followed up and developed by other channels.

Other social networks, such as Facebook and LinkedIn can be used to connect with other professionals and share content such as news articles and research papers.

Raising awareness amongst general public

A new European Commission Directive, the Basic Safety Standards (BSS) Directive (2013/59/Euratom)¹⁶ was adopted across European member states in December 2013 and incorporates the latest recommendations from the International Commission on Radiological Protection (ICRP) published in 2007.¹⁷ The BSS requires that all member states create a ‘national action plan’ for dealing with radon, which should include a ‘strategy for communication to increase public awareness... of the risks of radon’.

McLaughlin (2014)¹⁸ suggests that ‘The most important objectives of such a communication strategy should be:

- 1) Raising public awareness of radon and its associated health risks
- 2) Persuading the public to measure radon in their homes and
- 3) Persuading householders to take action to reduce elevated indoor radon concentrations.’

If item 1) above is carried out effectively, items 2) and 3) should naturally follow, as “people are motivated to seek health and avoid illness” (Rothman *et al*, 1997).¹⁹ Rothman *et al* (1997) hypothesises that “health-relevant communications can be framed in terms of the benefits (gains) or costs (losses) associated with a particular behaviour”.

A radon risk communication message could be framed in terms of the benefits or costs, for example “Test your home for radon so that action can be taken to avoid your family being exposed to harmful levels of radiation if high levels are found” (benefit) or “If you don’t test your home for radon, your family are at risk of lung cancer” (cost).

proptECO has found that when communicating with the general public, many of whom will not have had any previous knowledge about radon, it is most effective to frame the message in terms of benefits. If the message is framed in terms of costs, people may view this as scaremongering. This is particularly important to avoid when the message is being sent from a commercial organisation, as it could lead to the organisation being branded an ‘ambulance chaser’.

The information must also be communicated in a way that is clear and readily understandable by the intended audience, whilst also being factually and scientifically accurate. For many years, information aimed at the general public in the UK has mentioned the national reference levels in Becquerel per cubic meter (Bq/m³) and occasionally an exposure dosage in millisieverts (mSv). These scientific measurements are not helpful in increasing members of the public’s understanding of the risks, as the effect on the individual’s health is not readily understandable by a layperson.

proptECO found that other countries were explaining the radiation doses and health impacts of radon exposure by calculating equivalences that are more commonly recognised. For example, the US Environmental Protection Agency (EPA) convert lung damage received from exposure to a given radon concentration into lung damage that would be received from

smoking an equivalent number of cigarettes in the same time period²⁰ and the Radiological Protection Institute of Ireland (RPII) converts the radiation dose from radon exposure into the equivalent number of chest x-rays.²¹

propertECO have adopted this method when communicating radon risk and have found that the engagement of members of the public increases significantly after they understand what the radiation dose from radon could be doing to their body. Anecdotal evidence has shown that remedial action is more likely after homeowners have discovered that the radon concentration in their homes means that each member of their family is receiving the equivalent radiation dose to a number of chest x-rays each year. Non-smokers are also often horrified that they could unknowingly be causing lung damage equivalent to smoking a pack of cigarettes every day just by inhaling the air in their home and subsequently decide to perform a test.

The format that any information is presented is important so that people can quickly find the information that is relevant to them. Webpages with information specifically aimed at people in different scenarios (e.g. information for homebuyers and sellers, information for landlords and tenants etc.) is beneficial as people are immediately presented with information that is relevant to them. Webpages listing Frequently Asked Questions (FAQs) and answers have been found to be some of the most highly visited pages on propertECO's website, indicating that presentation of information in this format is preferable to those seeking advice.

propertECO also looked to use other media for communicating the radon risk. Research from Cisco (2013) predicts that video will account for 79% of all consumer internet traffic in 2018, up from 66% in 2013.²²

Taking advice from a specialist video marketing company, propertECO created four separate videos about radon ("What is Radon and Why Should I Care?", "How to Test for Radon Gas", "How to Reduce High Radon Levels" and "Reducing Radon Levels in Basements"). Creating four separate videos enabled each video to be kept short (under 90 seconds) yet distil key pieces of information. Cartoon animation with voiceover was used for the videos as it allowed different scenarios to be quickly and easily shown without needing to find 'real life' examples. Animated videos including characters allow the information to be told as a story from the audiences' point of view and create empathy with the viewer. Animation also allows the video to be more entertaining, which increases engagement and memorability.

Figures (3) – (6) below show screenshots from each of the videos.



Figure (3): Screenshot from video entitled What is Radon and Why Should I Care?



Figure (4): Screenshot from video entitled How to Test for Radon Gas

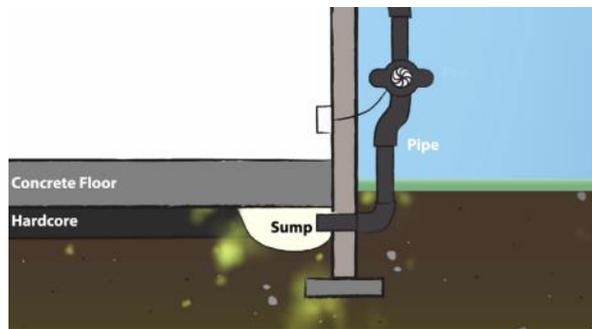


Figure (5): Screenshot from video entitled How to Reduce High Radon Levels



Figure (6): Screenshot from video entitled Reducing Radon Levels in Basements

These videos have been uploaded to YouTube and also appear on proptECO's webpage, and positive feedback has been received from the public and other radon professionals. After publication of these, similar videos have since been produced by the German Federal Office for Radiation Protection (BFS)²³ and Radiological Protection Institute of Ireland (RPII).²⁴ These are shown in Figures (7) and (8) below.



Figure (7): Screenshot from BFS video entitled What is Radon and How Does it Reach Buildings?



Figure (8): Screenshot from RPII video entitled How to Test Your Home for Radon Gas

UK Radon Association – A professional body

Having attended the International Radon Symposium in 2013 in Springfield, Illinois and witnessed how the energy and enthusiasm of radon professionals can be collectively harnessed and used to promote the industry by a body such as the American Association of Radon Scientists & Technologists (AARST), proptertECO recognised that this was sadly lacking in the UK. proptertECO had been involved in the instigation of the European Radon Association (ERA) in 2012-2013, and so discussed the idea of creating a similar UK body with several other industry colleagues.

The UK Radon Association was registered as a not-for-profit company with a group of industry members and, in addition to providing a professional body for those involved in radon testing, radon mitigation and radon protection, will work to raise awareness of radon and provide ‘consumer-friendly’ information on the subject.²⁵

The members recognise that, although working alongside competitors, a collective voice is more likely to be heard than an individual one. Greater awareness leads to an increased market from which everyone will benefit.

Following the lead of AARST and CARST (Canadian Association of Radon Scientists & Technologists), the UK Radon Association will engage with health professionals and cancer charities, as this link has not currently been utilised in the UK. It is hoped that successful partnerships with such bodies can be made, enabling joint activities to raise radon awareness to be undertaken.

The UK Radon Association also plans to arrange a Radon Awareness Week, again following the lead of other nations. By focusing efforts into a single targeted period of time, it is expected that a better response by the media will be received rather than a 'scattergun approach' of random communication throughout the year.

Conclusions

Several methods of communication have been identified, and proPERTECO have demonstrated that different channels can be used to raise awareness amongst different stakeholder groups.

Property professionals should be targeted, as they have the ability to diffuse the information not only amongst their profession but to clients (who may include employers of large numbers of people and the general public). Such professionals also have the ability to implement change in the work they do, by specifying radon testing and/or remediation where relevant. Where possible, face-to-face communication such as educational seminars can be used as there is a danger that unless they are specifically told otherwise, professionals may skip over information regarding radon presented in written format as they wrongly believe it is not relevant to them.

Messages should focus on the benefits of becoming radon-aware, presenting the information in a positive light and in a manner that will 'alert not alarm' the audience. Risks should be communicated in an easy-to-understand manner using non-scientific language. Converting the effects of radon into other more readily recognised risks, such as radiation from x-rays or lung damage from smoking has been shown to be particularly effective.

Alternative media, such as videos can be used to capture internet users' attention. These can be used as an introduction to the subject to complement more in-depth information that may be in written format. Targeting written information to specific user groups, such as homebuyers or employers, allows the relevant messages to be communicated clearly and concisely to the user.

Social media can be used to reach a wide audience and also to target specific individuals or groups.

This has been the experience of one mitigator operating in the UK market. It follows that if a healthy and active radon industry exists, and other mitigators are encouraged to carry out similar activities, the message about radon will be spread further and quicker.

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