



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

RADON – a public health perspective

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Public Health Physician role

- Identification of the **Population** exposed
 - those injured;
 - those potentially harmed who may need health surveillance; and
 - those who are unharmed or who may experience transient effects and who need full information
- **Assessment** of the **Risk** to public health
 - both the acute and chronic toxicant effects due to exposure to a noxious substance
- **Risk Communication** and guidance to key health professionals and
- **Risk Communication** to the public to address concerns.



Outline

- Smoking and radon
- Radon
 - risk assessment based on a public health approach to environmental epidemiology
- Radon risk communication
- Mallow case scenario as example of radon risk communication



Radon multiplies the adverse effect of smoking

- Non Smoker, little radon exposure -
LEAST RISK
- Non Smoker, some radon exposure -
SOME RISK
- Smoker, little radon exposure -
INCREASED RISK
- Smoker with radon exposure -
GREATEST RISK



Environmental epidemiology

The elements of an effective Environmental Hazard Control System encompass

- Prevention
- Surveillance
- Cluster investigation
- Plans and protocols
- Communication with the public *RPII*
- Toxicology service / **radiological expertise** for dose measurement and risk calculation *RPII*
- Professional networks and relationships
- Education)
- Training) CME and competence assurance
- Audit)



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Prevention of Radon exposure

- National Building Regulations
- Enforcement of building standards for radon barriers
 - Who has responsibility?
 - General
 - Targeted
 - According to radon risk for area
 - As above + smoking rates
- Awareness of need to prevent radon in the built environment



Surveillance of Radon exposure

- Radon measurements
 - Geology
 - Built environment
- Lung cancer epidemiology
- Smoking rates
- Surveillance
 - Trend analysis
 - Cluster identification and investigation
 - Limitations: small area analysis, smoking confounds, exposure evaluation



Cluster investigation

Requires identification of the cluster in the first instance

- A true cluster in Kerry?

For	Against
Documented exposure	Documented exposure
Biological plausibility	More than 1 diagnosis
Probability of occurrence	
Lung ca latency period	



Risk of Lung Cancer

Radon Conc Bq/m³	Lifelong Non Smoker to age 75 years	Smoker
0	0.41%	10.1%
100	0.47%	11.6%
200	0.55%	13.0%
400	0.67%	16.0%
800	0.93%	21.6%



Plans and protocols

- **Memorandum of Understanding** between RPII & HSE
- **National Protocol** per RPII meeting Nov 2007
- Radon levels in homes
 - 200 Bq/m³ – 800 Bq/m³, write to customer advise remediation
 - 800 Bq/m³ to – 2,000 Bq/m³ as above plus phone customer
 - 2,000 Bq/m³ to 4,000 Bq/m³ as above plus issue a public statement
 - >4,000 Bq/m³ as above plus engage with other agencies
- The investigation and handling of extreme radon levels can overlap with the work of other agencies
- It is important to work together with key agencies and individuals to ensure a co-ordinated response



Professional networks & relationships 1

Interprofessional working

- To resolve complex problems
- Involves the achievement of decisions and plans of action by consensus with
- Integration of the knowledge and assumptions of several professions
- In this perspective multi-disciplinary approaches are based on consultation but defined as non-interactive because executive decisions are made by the provider initiating the consultations (Casto, 1994).



Professional networks & relationships 2

- Liaison
 - Understanding of individual roles and responsibilities
 - Referral and discharge arrangements
 - Communication channels
- On the basis of MoU,
- On the basis of agreed plans and protocols



Radon risk management

- Eliminate the risk – remediate the building to reduce the radon concentration
- Reduce the risk – stop smoking
- HSE offer of Smoking Cessation Services
 - Uptake NIL



Radon risk communication

- A system of engagement with the community
- Sound credible information base
- Risk awareness communication
 - Outline the risk while specifying personal control
- Crisis communication



Radon risk communication

Mallow social housing

- Sound credible information base
 - Full information sharing on what was known about the problem – Co Co, HSE, RPII
 - Option generation and appraisal
 - Agreement on communication priorities
 - Interagency interdisciplinary review and approval
- Risk awareness communication
 - Letter to each head of household – Co Co
 - Public meetings - RPII
 - Meeting with Town Council - RPII
- A system of engagement with the community



RADON

- A manageable risk to public health
- An interagency approach is recommended
- Smoking cessation is key to risk reduction from Radon exposure
- RPII and HSE to produce joint position paper on Radon under MoU