



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive

# RADON – a public health perspective

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# Public Health Physician role

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- 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

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- 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

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- 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

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## *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 )



# Environmental epidemiology

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# Prevention of Radon exposure

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- 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

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- 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?

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



# Risk of Lung Cancer

<b>Radon Conc Bq/m<sup>3</sup></b>	<b>Lifelong Non Smoker to age 75 years</b>	<b>Smoker</b>
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

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- **Memorandum of Understanding** between RPII & HSE
- **National Protocol** per RPII meeting Nov 2007
- Radon levels in homes
  - 200 Bq/m<sup>3</sup> – 800 Bq/m<sup>3</sup>, write to customer advise remediation
  - 800 Bq/m<sup>3</sup> to – 2,000 Bq/m<sup>3</sup> as above plus phone customer
  - 2,000 Bq/m<sup>3</sup> to 4,000 Bq/m<sup>3</sup> as above plus issue a public statement
  - >4,000 Bq/m<sup>3</sup> 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

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## 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

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- 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

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- 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

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- 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

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## ***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

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- 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