

# **The Impact of UK Government Targets for Smoking Cessation on the Effectiveness of the Radon Remediation Programme.**

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# Introduction

- Tobacco Smoking is the major risk factor for lung cancer, as well as a wide range of other respiratory and cardiac problems
- Radon is also a risk factor for lung cancer, second only to tobacco smoking
- Radon gas can concentrate in the built environment – including domestic housing
- Radon has a variable geographic distribution
- Levels in existing homes can be reduced by fitting a sump and extract fan; in new homes by installing a radon-proof membrane as the house is being built

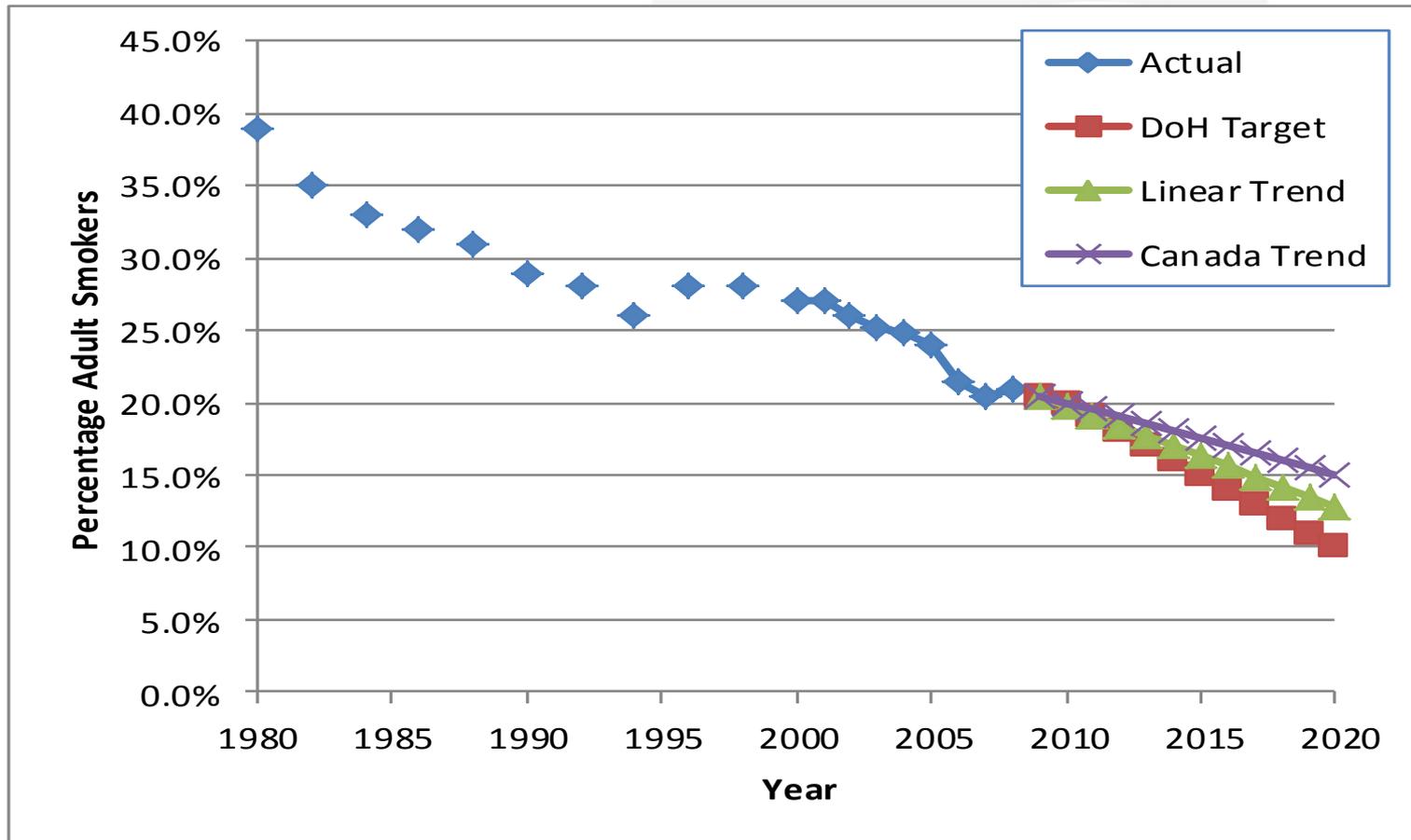
# Radon Remediation Programmes

- Radon levels in existing houses need to be measured to find those with high radon levels
- Householders who find high levels should then fit a sump/fan system
- However, in Radon Affected Areas in UK only around 40% of householders have tested their houses; and only 15% with raised levels have remediated
- Research show that those ***who smoke are less likely to remediate***, as are those who are younger and have larger families

# Lung Cancer Risks

- The combination of smoking and radon is sub-multiplicative
- Nearly all radon-induced cancers are in smokers
- Initiatives to reduce tobacco smoking prevalence will impact on the number of radon-induced lung cancers
- This will impact on the effectiveness of any radon remediation campaign
- The UK Government is current introducing a number of major initiatives to reduce smoking levels further

# Smoking Prevalence – England



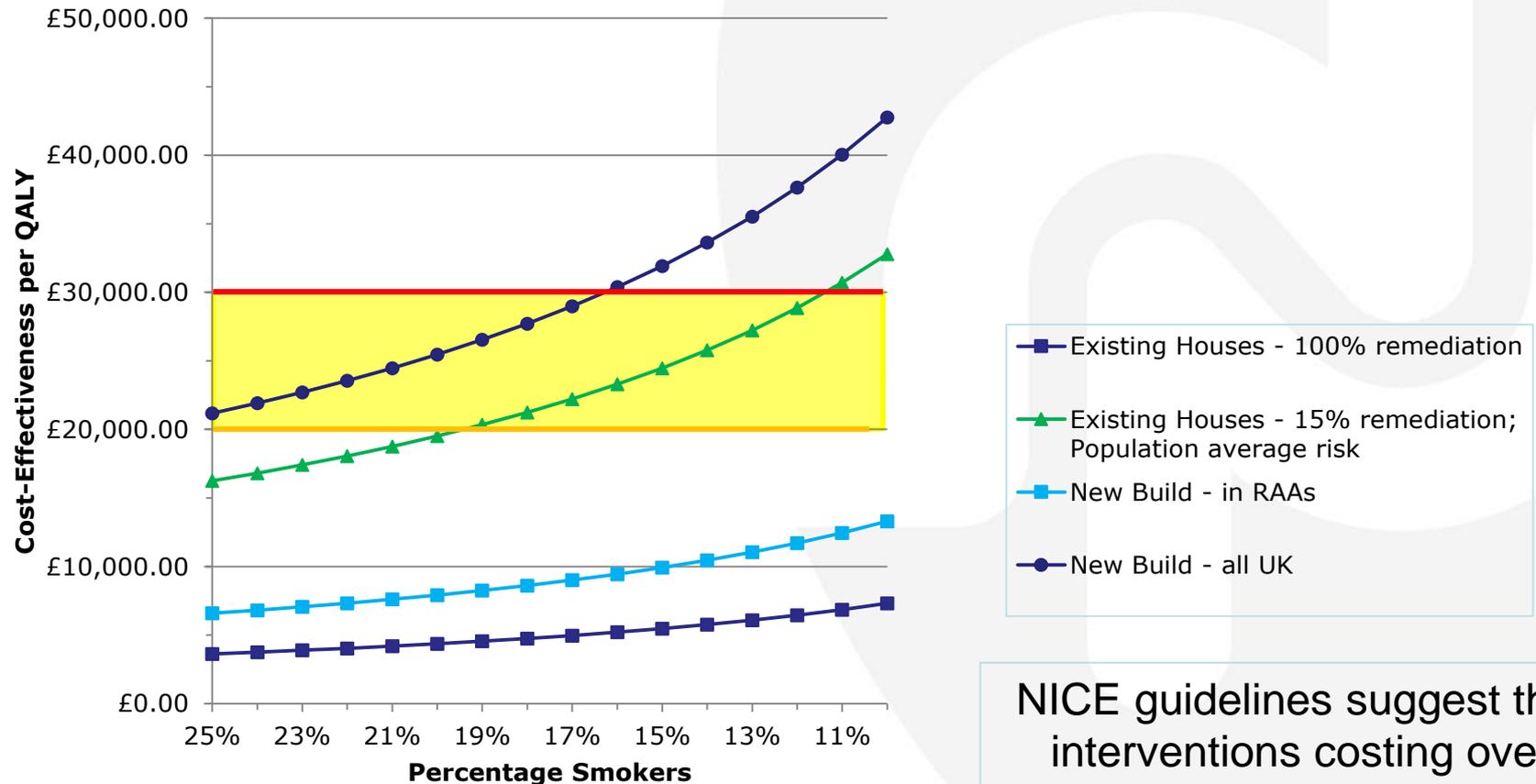
# Impact on Radon Remediation Programmes

- The continuing drop in smoking will result in fewer radon-induced lung cancers being averted in these programmes
- NEW HOMES
  - Radon-proof membranes required by Building Regulations
    - Should this only in Radon Affected Areas, or throughout England and Wales ?
- EXISTING HOUSES
  - Encourage measurements and then remediation if required
    - Should this be limited to high radon areas ?

# Cost-Effectiveness

- For EXISTING HOMES, costs include
  - Initial Testing of a group of houses
  - Fitting the sump/pump system if levels raised
  - Test of Levels after remediation
  - Running Costs
- For NEW HOMES, the cost is the extra cost of the radon-proof membrane
- Benefits – reduction in lung cancers – saving 13.5 years of life on average, treatment costs

# Cost- Effectiveness and Smoking Prevalence



NICE guidelines suggest that interventions costing over £20,000 to £30,000 per Quality-Adjusted Life Year (QALY) are poor value

## Conclusions (1)

- The extensive initiatives to reduce smoking also have the benefit of reducing radon-induced lung cancers significantly.
- Whilst radon remediation programmes in both existing and new houses will reduce additional lung cancers, the number will fall as smoking prevalence drops, which reduces the cost-effectiveness of such programmes.
- The modest public response to radon remediation programmes in existing houses, where fewer smokers respond, reduces cost-effectiveness.
- The cost-effectiveness of radon protection in all new homes is suspect, as smoking prevalence drops.

## Conclusions (2)

- There is a need for an integrated strategy to tackle smoking and radon, to acknowledge the major role that smoking cessation programmes play in reducing radon-induced lung cancers, and initiate radon remediation programmes with care to ensure that limited resources are targeted where there is greatest benefit.