



## Lung Cancer Screening using Spiral CT Scanning

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### DESCRIPTION

Lung cancer is estimated to have caused 35,300 deaths per year in the UK, with survival rates related to early diagnosis. With research from the United States (US) reporting a 20% reduction in mortality rates with the introduction of screening, low-dose computed tomographic screening (i.e. spiral CT scan), many countries are also considering implementing similar screening programmes, with the UK piloting lung cancer screening for high-risk individuals, i.e. current or ex-smokers aged 55–74 with at least 30 smoking pack-years.

The results from two large European trials, the UK Lung Screening Trial and the Dutch-Belgian randomized lung cancer screening trial showed that using spiral CT scanning as a method to detect lung cancer early was effective. Collectively the findings suggest CT scanning diagnoses lung cancer early, which allowed the delivery of treatment in over 80% of cases, and it also decreased lung cancer mortality in high risk men by 26% and for high risk women by 61% over a 10-year period. Other UK studies such as the Manchester project also found similar results, with a greater percentage of stage one cancers being diagnosed. These results have given support for the implementation of screening programmes in the UK and as such the UK National Health Service (NHS) began piloting lung cancer checks in Autumn 2019.

Screening uptake is key to ensure effective lung cancer prevention and to help reduce lung cancer mortality rates. Previous research has shown biennial low dose CT scanning reduced lung cancer mortality by up to 44% compared to annual

low dose CT scanning over a ten-year period. However, recent qualitative research on smokers attitudes towards lung cancer screening participation has highlighted a range of factors that may impact this decision including smokers risk perception, practical inconvenience, health awareness gap, fear of the test and false positives, though no studies have investigated whether smokers attitudes may change after raising awareness of possible screening programmes for lung cancer.

Screening for lung cancer using spiral CT has the ability to detect tumours during its early stages when treatment is most likely to be responsive. However, the evidence from lung cancer trials have produced mixed results, with some trials showing evidence of over diagnosis, for example the Danish Lung Cancer Screening Trial and the National Lung Cancer Screening Trial, with others showing less evidence of over diagnosis, the Italian Lung Cancer Screening Trial. Though over diagnosis should be considered as a risk factor of lung cancer screening using spiral CT, a recent meta-analysis cast doubt on the levels of over diagnosis that occurs and suggests either the screening frequency or criteria (i.e. age and smoking history) be adjusted to reduce this problem. Nevertheless, a recent meta-analysis demonstrated spiral CT scanning significantly increased stage one lung cancer detection and overall reduced lung cancer mortality. Given the benefits of lung cancer screening and the effectiveness of screening implementation in community settings demonstrated in the United States, it is important to find out more about the attitudes of current smokers in the UK towards screening and screening participation.

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