Low-dose computed tomography for lung cancer screening in high-risk populations: a systematic review and economic evaluation

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Plain English summary

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Lung cancer is a leading cause of death among smokers in the UK. Many people each year are diagnosed with lung cancer and experience poor outcomes because it is usually diagnosed in later stages of the disease when cure is unlikely. If lung cancer can be found earlier it may reduce the number of people dying from lung cancer and give people with lung cancer better outcomes.

Computed tomography (CT) is a technique that uses X-rays to produce images of cross-sections through a person’s body, and this can show up lung cancers. Repeated exposure to X-ray radiation could be harmful. Low-dose CT (LDCT) reduces the amount of radiation to the point that it may, on balance, be safe to receive as a screening test, that is, a test to be used in people who may not have any symptoms of lung cancer.

We searched for high-quality trials [randomised controlled trials (RCTs)] of LDCT as a screening test for lung cancer. We found 12 RCTs, but only six of these currently provide evidence on key patient outcomes. More will do so in the future. We found some evidence that LDCT could reduce deaths from lung cancer, but this evidence was mixed and no firm conclusion could be reached.

We estimated whether or not screening for lung cancer with LDCT could be a good use of NHS resources, assuming that there is a reduction in death from lung cancer. It may or may not be cost-effective to screen once for lung cancer in people aged 60–75 years with a high risk of lung cancer, depending on the threshold used by policy-makers.

There are trials of lung cancer screening expected to publish results within the next few years, and these might make the evidence on clinical effectiveness and cost-effectiveness clearer.
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