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UK Lung cancer Screening pilot trial (UKLS)

Submission date
17/01/2014

Recruitment status
No longer recruiting

Registration date
20/01/2014

Overall study status
Completed

Last Edited
30/09/2021

Condition category
Cancer

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Lung cancer kills more people worldwide than any other malignancy. Currently 33,500 individuals die each year in the UK from lung cancer. The number of deaths has fallen in the past years and this is likely to be due to a decline in tobacco smoking and possibly greater public awareness. However, there is now a large ex-smoking population in the USA and Europe who remain at high risk of developing lung cancer, which is dependent on how long they smoked. This group of individuals now exceeds current smokers in both the USA and Europe and will continue to do so over the next two to three decades. Screening to detect the disease before patients develop any symptoms is a control measure urgently requiring evaluation, as surgery at an early stage of the disease remains the only realistic option for a cure. The aim of the UKLS study is to assess whether low-dose computed tomography (LDCT) screening and treatment of early lesions decreases lung cancer mortality compared to a control group without screening.

Who can participate?
The UKLS pilot trial aims to recruit 4000 men and women aged 50 to 75.

What does the study involve?
An initial mailing will be sent out to 250,000 individuals containing a patient information leaflet, first questionnaire, refusal to participate questionnaire, and a prepaid envelope to allow the documents to be returned. Eligible participants will receive a second invitation letter, including a more detailed participant information booklet, a further questionnaire, a refusal to participate questionnaire and a prepaid envelope. The second questionnaire includes a section for the individual to sign to indicate they are happy to be contacted by the UKLS team so that a recruitment appointment can be booked for them. At the recruitment appointment, recruits in groups of 6-8 individuals will be shown a UKLS Information DVD which provides a background to the UKLS trial. The research nurse will hold a group discussion to answer general questions. The participant will then go to a separate clinic room, where they will meet with the UKLS research nurse to confirm eligibility for the study and to discuss any outstanding issues in detail. The participant has the opportunity to ask questions at this stage. If an individual agrees to participate, fully informed written consent to participate in the UKLS study will be taken by the UKLS research nurse. The UKLS research nurse will then perform a lung function test. Blood samples (up to 24 ml), buccal (cheek) swabs, nasal brushings and samples of sputum (a thick fluid produced in the lungs) will be taken. The participant will then be asked to complete a questionnaire on a touch screen computer. Assistance will be provided to the participants on

how to complete the questionnaire. About 2 weeks after the clinic visit, participants will be told whether they have been randomly allocated to either the CT scan group or the non-CT scan group. All smokers will be provided with smoking cessation advice sheets and a list of local NHS Stop Smoking services. Participants allocated to the CT scan arm will attend an appointment to undergo a CT scan of the chest. Participants needing a 3- or 12-month repeat scan are contacted by the UKLS to book the appointment at the appropriate time. Two weeks after receiving the scan results the participants will receive a questionnaire in the post to be completed and returned to the UKLS team. Participants allocated to the non-CT scan group will receive a questionnaire two weeks after allocation.

What are the possible benefits and risks of participating?
Participating in the screening may cause anxiety, for example when awaiting the outcome of the CT screen and for those who require follow-up CT screens. In order to reduce this anxiety, we will provide an informative patient information leaflet, further information on our UKLS website and also a telephone number for anxious patients to call. The research nurse will be available at each afternoon session to answer calls or make appointments to see anxious patients. If a patient is extremely anxious the respiratory consultant will provide an appointment to see these individuals. In such cases we will also inform the participant's GP of their concerns, in order that they may have further support.
Participants may be concerned about the exposure to radiation from a CT scan. The amount of radiation delivered by one low-dose CT scan of the chest to a standard-sized adult is about 1 mSv (in clinical practice a routine chest CT examination may be up to 10 mSv). 1 mSv is equivalent to about 5 months' worth of natural background radiation. The International Committee on Radiological Protection advises that there may be a small chance that low amounts of radiation may cause cell damage that will manifest itself as cancer many years after the exposure. In the UKLS the radiation dose will almost invariably be less than 1 mSv. The risk of cancer induction for one low-dose CT scan is estimated to be 1 in 20,000 for a healthy 50-year-old (this is additional to the lifetime likelihood of developing cancer of about 1 in 4). We will make the above information clear to all potential participants during the consent process.
Diagnostic work-up may cause anxiety in participants. The great majority of suspicious nodules will not grow and will be regarded as benign. This will be made clear to subjects recalled for additional investigation. The detection of such nodules is an unavoidable part of the screening programme. The patient information leaflet will provide a detailed explanation of why follow-up CT is needed in a relatively high proportion of subjects and the associated risks. Early results from other screening trials have indicated that clinical work-up will only occur in a very small proportion of the CT screened population (estimated at 1.5%, of which 70% will have lung cancer). The proportion of subjects that undergo these tests is kept low by ensuring that subjects are filtered by less invasive tests (repeat CT) until the probability of malignancy is sufficiently high to warrant invasive tests or resection.

Where is the study run from?
The study will be co-ordinated by the Liverpool Cancer Trials Unit, University of Liverpool. The recruiting hospitals will be Liverpool Heart & Chest Hospital and Papworth Hospital in Cambridge.

When is the study starting and how long is it expected to run for?
April 2011 to December 2012

Who is funding the study?
NIHR Health Technology Assessment Programme - HTA (UK)

Who is the main contact?
1. Prof John Field (j.k.field@liv.ac.uk)
2. Mrs Beverley Green (bevgreen@liv.ac.uk)

Study website
http://www.ukls.org

Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
HTA 09/61/01

Study information

Scientific Title
UK Lung cancer Screening pilot trial (UKLS)

Acronym
UKLS

Study objectives
The overall aim is to determine whether there is a lung cancer mortality benefit from CT screening. The objective of a main UKLS trial would be to assess whether Low Dose Computed Tomography (LDCT) screening and treatment of early lesions will decrease lung cancer mortality compared to a control group without screening and will provide data required for an informed decision regarding the introduction of population CT screening for lung cancer. The objective of

this pilot UKLS trial is to ensure the processes and components which will be used in the main trial are cohesive and practicable.

More details can be found at: http://www.nets.nihr.ac.uk/projects/hta/096101
Protocol can be found at: http://www.nets.nihr.ac.uk/__data/assets/pdf_file/0018/54612/PRO-09-61-01.pdf

Ethics approval required
Old ethics approval format

Ethics approval(s)
North West Ethics, Liverpool Central, 06/12/2010, ref: 10/H1005/74

Study design
Multi-centre randomised controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Screening

Participant information sheet
Patient information can be found at: http://www.ukls.org/participants-information.html

Health condition(s) or problem(s) studied
Lung cancer

Interventions
Every participant attends a recruitment centre where they watch a DVD, go through fully informed consent, undertake a lung function test, and provide a sample of blood, sputum and buccal scrape. They also complete a touch screen lifestyle and psychosocial questionnaire. Two weeks after the clinic appointment randomisation takes place. 50% are randomised into the CT scan arm and 50% are randomised into the non CT scan arm.

CT scan arm
Once a participant is randomised to the CT scan arm they receive an appointment to undergo a CT scan of the chest. Scans are initially read by the Consultant Radiologist at the appropriate hospital (Papworth and Liverpool Heart & Chest Hospitals). The scan images are then sent to the Royal Brompton Hospital in London to be read by a second Consultant Radiologist. Once consensus is agreed the scan results are uploaded onto the UKLS database. Scan results are sent by post by the UKLS project management team within three weeks and can be:

End of screening - no abnormality found
Repeat scan in 12 months - nodule 3 mm to 4.9 mm

Repeat scan in 3 months - nodule 5 mm to 9.9 mm
Referral to multi-disciplinary team - nodule 10 mm or above

A copy of the results letter is sent to the participants' GPs for information. Any clinically significant incidental findings are also advised to the GP so they can follow up as appropriate. Participants needing a 3- or 12-month repeat scan are contacted by the UKLS project management to book the appointment at the appropriate time.

Two weeks after receiving the scan results the participants receive a psychosocial questionnaire in the post to be completed and returned to the UKLS team.

Non CT scan arm
Participants randomised to the non-CT scan arm will receive a psychosocial questionnaire two weeks post-randomisation.

Follow-up of both arms will continue for 10 years via the Health & Social Care Information Centre from whom we will receive data on deaths and cancers diagnosed. We will also seek Hospital Episode Statistics (HES) data on all recruited participants.

Intervention Type
Other

Phase
Not Applicable

Primary outcome measure
1. Will the proposed method of recruitment (based on the protocol of a two-stage postal survey of risk directly aimed at the general population) deliver the required numbers? This entails estimating:
1.1. Response rates to questionnaires
1.2. Proportion of subjects approached who are eligible
1.3. Proportion of eligible subjects who consent to randomisation
1.4. Proportion of subjects randomised to LDCT who comply with the intervention
2. We shall also monitor the performance of all aspects of the clinical care pathway and the research evaluation technicalities, including for example the database system

Secondary outcome measures
1. How many subjects need to be approached to obtain the required full trial population?
2. Do the recruitment, randomisation and scanning protocols work in practice? Is the recruits journey from initial survey to LDCT scanning logistically efficient?
3. Are both fixed and mobile CT units practicable for trial purposes - is one preferable to the other in terms of cost/convenience?
4. Testing of staff training programmes
5. Testing of QA procedures, for radiology and technology, including radiation dose aspects
6. Do questionnaires or consent/information procedures or documentation need revising?
7. Review recruitment in hard-to-reach groups
8. UKLS database capable of capturing all of the required information from the recruitment phase to CT screening, investigations and treatment
11. Collection of blood/sputum specimens at the recruitment phase, and QC

12. Provide screening data for HTA review at month 12 of the pilot for review and decision whether to fund the main UKLS trial
13. Management of the UKLS through the Liverpool Cancer Trials Unit (LCTU)

Overall study start date
01/04/2011

Completion date
31/12/2012

Eligibility

Key inclusion criteria
1. Risk criteria based on the LLP Risk Prediction Model (includes age, sex, smoking duration, history of previous pneumonia, history of previous cancer, family history [early/late onset], exposure to asbestos - algorithm)
2. Males and females aged between 50 to 75 years old
3. Fully informed written consent given

Participant type(s)
Patient

Age group
Other

Sex
Both

Target number of participants
4000

Total final enrolment
4055

Key exclusion criteria
1. Unable to give consent
2. Co-morbidity which would unequivocally contraindicate either screening or treatment if lung cancer were detected
3. A CT scan of the chest performed within one year of the invitation to be screened
4. Any condition precluding written informed consent
5. Inability to lie flat
6. Weight greater than 200 kg (too large for CT scanner)

Date of first enrolment
01/04/2011

Date of final enrolment
31/12/2012

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
University of Liverpool Cancer Research Centre
Liverpool
United Kingdom
L3 9TA

Sponsor information

Organisation
Royal Liverpool & Broadgreen University Hospital Trust (UK)

Sponsor details
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United Kingdom
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Sponsor type
Hospital/treatment centre

Website
http://www.rlbuht.nhs.uk

ROR
https://ror.org/009sa0g06

Funder(s)

Funder type
Government

Funder Name
Health Technology Assessment Programme

Alternative Name(s)
NIHR Health Technology Assessment Programme, HTA

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	14/07/2015		Yes	No
Results article	results	01/02/2016		Yes	No
Results article	results	01/05/2016		Yes	No
Results article	results	01/11/2016		Yes	No
Results article	results	01/10/2017		Yes	No
Results article		11/09/2021	30/09/2021	Yes	No