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Acceptability of a virtual reality tour for patients referred for their first PET-CT scan

Submission date
02/08/2023

Recruitment status
No longer recruiting

Registration date
04/09/2023

Overall study status
Completed

Last Edited
21/11/2025

Condition category
Other

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

Plain English summary of protocol

Background and study aims
Every year a small percentage of patients that are referred for a PET/CT are unable to complete the procedure due to claustrophobia-induced and procedure-related anxiety. As PET/CT involves the use of a radioactive tracer, patients that have the injection but then fail to finish the scan due to anxiety will receive the radiation detriment for no benefit. Most patients will have some form of anxiety when having their first PET-CT scan and so an intervention that would help alleviate procedural anxiety and improve the patient experience is welcomed. The project proposed will investigate whether a virtual tour constructed from 360 videos of the PET suite, and procedures that the patient would undergo (Virtual Reality (VR) intervention), displayed on a VR Headset, could be used to reduce procedure-related anxiety and improve the patient experience. The Virtual Tour (VT) is very much like the VTs that estate agents use to showcase properties. This is a pilot study; therefore, the primary aim is to assess the acceptability and feasibility of the VT tour for any patient having their first PET-CT and collect data on anxiety before and after the VT. This pilot will inform and appropriately power a larger trial (multi-centre) and provide additional information to existing knowledge in the literature.

Who can participate?
Adult patients attending a PET/CT scan

What does the study involve?
Anxiety will be measured using a non-validated anxiety measure before and once again after the intervention. The second measure will be taken before the patient's actual PET/CT scan. Heart rate will also be measured during the VT and during the actual PET-CT scan. These will be compared to see if the mean heart rate is reduced when compared to the VT mean heart rate. An interview is conducted a day or two after the PET-CT scan to gather information on the participant's experience, which will be used to further improve the VT.

What are the possible benefits and risks of participating?
The researchers are conducting this trial to see if our current prototype is acceptable and if there is a potential benefit in reducing anxiety directly regarding the scan. They do not know if the VT will reduce a patient’s anxiety, which is why they are doing this study. It is hoped that the information from this study will help to improve the care of people who are anxious about PET

/CT scans.
It is very unlikely that a participant would be harmed by taking part in this research. As the VR tour simulates the PET/CT experience, it is possible that it may make them feel anxious. Motion sickness from the VT is also a possibility, however, the tour has been designed to mitigate this risk and include mostly static viewpoints.

Where is the study run from?
Churchill Hospital (UK)

When is the study starting and how long is it expected to run for?
December 2022 to June 2023

Who is funding the study?
Oxford University Hospitals NHS Foundation Trust (UK)

Who is the main contact?
Mr Michael Barnard, michael.barnard@ouh.nhs.uk

Contact information

Type(s)
Principal investigator

Contact name
Dr Daniel McGowan

ORCID ID
https://orcid.org/0000-0002-6880-5687

Contact details
Radiation Physics and Protection
Churchill Hospital
Old Road
Oxford
United Kingdom
OX3 7LE
+44 (0)1865 235338
daniel.mcgowan@ouh.nhs.uk

Type(s)
Scientific

Contact name
Mr Michael Barnard

ORCID ID
https://orcid.org/0000-0003-3323-1158

Contact details
Radiation Physics and Protection, Churchill Hospital
Old Road

Oxford
United Kingdom
OX3 7LE
+44 (0)1865235333
michael.barnard@ouh.nhs.uk

Additional identifiers

Integrated Research Application System (IRAS)
318986

Central Portfolio Management System (CPMS)
55006

Study information

Scientific Title
Feasibility study on the acceptability of a virtual reality tour for patients referred for their first PET-CT scan

Acronym
PET-CT VR Tour HR

Study objectives
That the current prototype virtual tour is acceptable to patients. A virtual tour of the PET-CT pathway observed by patients before their actual first PET-CT, reduces their heart rate during the real PET-CT compared with their heart rate during the virtual tour PET-CT.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 27/02/2023, London - Dulwich REC (HRA, Skipton House, 80 London Road, London, SE1 6LH, United Kingdom; +44 (0)2071048094; dulwich.rec@hra.nhs.uk), ref: 23/LO/0050

Primary study design
Interventional

Study design
Single-centre pilot study

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Reduction of procedural anxiety

Interventions
All participants have the Virtual Tour (VT). All participants are given a non-validated Anxiety Questionnaire after informed consent and eligibility. During the VT their heart rate is measured.

10 minutes before their actual appointment time, the Anxiety questionnaire is completed again. Heart rate is monitored also during the actual PET-CT scan. An interview is conducted after at least 1 day to gather information to improve the intervention.

Intervention Type
Behavioural

Primary outcome(s)
1. Heart rate measured using an optical sensor during virtual tour PET-CT bore experience and real PET-CT experience
2. Acceptability and experience of the intervention measured using interviews from Day 2 onwards

Key secondary outcome(s)
1. Anxiety measured using Anxiety Questionnaire scoring at baseline and after the intervention (10 min before PET-CT appointment time)

Completion date
30/06/2023

Eligibility

Key inclusion criteria
1. Participants aged over 18 years old
2. Participant is willing and able to give informed consent for participation in the study
3. Participant has the required visual acuity to view the VR Tour
4. Participant has the manual dexterity to use the controller

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
99 Years

Sex
All

Total final enrolment
20

Key exclusion criteria

1. Participant has received a PET/CT scan previously
2. Participant has a hearing impairment which means they cannot hear speech on the tour application
3. Participants who are unable to communicate clearly in English over the telephone for 30 minutes
4. Participants who are unable to understand written English
5. Participant has limited mobility and is unable to position themselves with minimal assistance onto a bed

Date of first enrolment
27/02/2023

Date of final enrolment
28/06/2023

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Oxford University Hospitals NHS Foundation Trust
John Radcliffe Hospital
Headley Way
Headington
Oxford
England
OX3 9DU

Sponsor information

Organisation
Oxford University Hospitals NHS Trust

ROR
https://ror.org/03h2bh287

Funder(s)

Funder type
Hospital/treatment centre

Funder Name
Oxford University Hospitals NHS Foundation Trust

Alternative Name(s)
Oxford University Hospitals National Health Service Trust, OUH

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		19/11/2025	21/11/2025	Yes	No
Participant information sheet	version 1.1	01/01/2023	02/08/2023	No	Yes