

An evaluation of Ufonia's conversational agent Dora for cataract surgery follow-up

Submission date 08/11/2021	Recruitment status No longer recruiting	☐ Prospectively registered ☒ Protocol
Registration date 11/01/2022	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 19/09/2025	Condition category Surgery	☐ Individual participant data

Plain English summary of protocol

Background and study aims

This project will apply AI technology to meet the gap between increasing demand and the limited capacity of high-volume healthcare services. Ufonia proposes to replace routine clinical follow-up with Dora - a natural-language AI assistant delivered via a regular telephone call. The project will develop evidence that will support the safe deployment of Ufonia's automated telemedicine platform to deliver calls to cataract surgery patients at two large NHS hospital trusts.

Who can participate?

Patients aged 18 years and over who are listed for routine cataract surgery at either Imperial or Oxford NHS Trusts

What does the study involve?

The Dora call doesn't require patients to download any application, be provided with any device or receive any training. They simply receive a call and have a conversation just as they would have done with a human clinician, on top of the care they would receive if not participating in the study. All participants will also be asked to complete a short survey about their experience, and a small group of participants will be randomly selected for an interview to discuss their experience in more depth.

What are the possible benefits and risks of participating?

This safety check is additional to the usual standard of care at the two sites where the study is being conducted. The process will be overseen by a clinician and the system is designed to provide a thorough assessment every time. This study will also benefit future patients through a more convenient follow-up service. Potential disadvantages are that this is a new system so has not been demonstrated to be effective - this is why the system is currently overseen by a clinician.

Where is the study run from?

Oxford University Hospitals and Imperial College Healthcare NHS Trusts (UK)

When is the study starting and how long is it expected to run for?
March 2020 to March 2022

Who is funding the study?
National Institute for Health Research (NIHR) (UK)

Who is the main contact?
Dr Eduardo Normando, Chief Investigator (e.normando@imperial.ac.uk)
Dr Kanmin Xue, Principal Investigator (kanmin.xue@ouh.nhs.uk);
Dr Edward Meinert, Co-Investigator (edward.meinert@newcastle.ac.uk)

Contact information

Type(s)
Scientific

Contact name
Dr Eduardo Normando

ORCID ID
<https://orcid.org/0000-0002-5774-8082>

Contact details
Imperial College Healthcare NHS Trust
153-173 Marylebone Rd
London
United Kingdom
NW1 5QH
+44 (0)20 3312 3206
e.normando@imperial.ac.uk

Type(s)
Public

Contact name
Dr Edward Meinert

ORCID ID
<https://orcid.org/0000-0003-2484-3347>

Contact details
Henry Wellcome Building for Biogerontology Research
Campus Of Ageing And Vitality
Westgate Road
Newcastle upon Tyne
United Kingdom
NE4 5PL
-
edward.meinert@newcastle.ac.uk

Additional identifiers

ClinicalTrials.gov (NCT)

NCT05213390

Integrated Research Application System (IRAS)

297548

Central Portfolio Management System (CPMS)

49658

Study information

Scientific Title

Autonomous telemedicine - cataract surgery follow-up at two NHS trusts

Study objectives

An autonomous conversational agent can identify which patients need clinical follow up after a cataract operation.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 01/07/2021, Research Ethics Committee (REC) London Centre (2 Redman Place, HRA, E20 1JQ; +44 (0)2071048029, chelsea.rec@hra.nhs.uk), REC ref: 21/PR/0767

Primary study design

Interventional

Study design

Mixed methods non-randomized study

Study type(s)

Screening

Health condition(s) or problem(s) studied

Clinical follow-up of postoperative symptoms in patients who have undergone routine cataract surgery

Interventions

The autonomous conversational agent (Dora) is configured to deliver calls through a telephone connection as a real-time, stand-alone system: the operator inputs individual patient details to initiate the call and completes a summary in the electronic health record (EHR) afterwards. The entire conversation will be supervised by a clinician who can interrupt if Dora does not collect sufficient information from the patient. All patients who participate in the study will receive the Dora call (one arm).

One of the two clinical trial sites (Imperial) sees all of their postoperative cataract patients at a face-to-face out-patient appointment with an ophthalmologist or specialist nurse. The Dora call

will be conducted shortly before this appointment, so the results of the Dora call can be compared with the face-to-face appointment to assess whether any complications were correctly identified and if the management plan remains the same. The Oxford University Hospitals NHS Trust does not conduct routine face-to-face follow-up appointments, so there is no direct comparator for that site. For patients at both clinical sites, however, health records will be examined 90 days after the call to determine whether the patient presented to an eye clinic with any complications from surgery, to enable an assessment of DORA's safety.

Intervention Type

Other

Primary outcome(s)

Agreement is measured by inter-rater reliability (the degree of agreement between DORA and the clinician on their assessments of the individual symptoms and the management plan) and whether or not the clinician had to interrupt the call to ask clarifying questions. Measured at 0 days.

Key secondary outcome(s)

1. Clinical safety measured using complications identified from patients' electronic health records up to 90 days following cataract surgery, congruence between complications identified and management planned in DORA call and face-to-face follow up within a couple of days of the Dora call (Imperial), and comparison to data from patients attending eye casualty (Oxford) at 0 days
2. Feasibility measured by calculating the proportion of autonomous calls that were completed without needing any intervention from the supervising clinician and reviewing the clinician-reported reasons for asking clarifying questions during the call at 7 days
3. Usability measured by the System Usability Scale and the Telehealth Usability Scale, delivered to patients via online or telephone survey within 2 days of the Dora call
4. Usability, acceptability, satisfaction, and appropriateness measured by semi-structured interviews with a small, stratified random sample of participants, conducted through the intervention period
5. Cost-effectiveness measured by a comparison of the costs of implementing Dora and the costs of the usual standard of care over the duration of the intervention delivery period

Completion date

24/03/2022

Eligibility

Key inclusion criteria

1. Willing and able to provide informed consent
2. Aged 18 years or older
3. On the waiting list for routine cataract surgery. Cataract surgery as part of a combined procedure with other ocular surgery will not be included
4. No history or presence of significant ocular comorbidities that would be expected to alter the risks of cataract surgery or normal post-operative follow-up schedule. Note that significant ocular comorbidities do not include stable, chronic, or inactive ocular conditions such as amblyopia, drop-controlled stable glaucoma or ocular hypertension, previous squint surgery, inactive macular pathology, previous refractive surgery, or previous vitreoretinal surgery with stable retina

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 Years

Sex

All

Total final enrolment

225

Key exclusion criteria

1. Individuals with any condition that could preclude the ability to comply with the study or follow-up procedures
2. Presence of ocular or systemic uncontrolled disease (unless deemed not clinically significant by the Investigator and Sponsor)
3. Involved in current research related to this technology or been involved in related research to this technology prior to recruitment
4. Cognitive difficulties, hearing impairment or non-English speakers
5. History of current or severe, unstable or uncontrolled systemic disease (unless deemed not clinically significant by the Investigator and Sponsor)

Date of first enrolment

17/09/2021

Date of final enrolment

31/01/2022

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre

Imperial College Healthcare NHS Trust

Western Eye Hospital

153-173 Marylebone Rd

London

United Kingdom

NW1 5QH

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

Sponsor information

Organisation
Imperial College London

ROR
<https://ror.org/041kmwe10>

Funder(s)

Funder type
Government

Funder Name
National Institute for Health Research

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

Audio recordings, transcriptions, and meta-data about the calls will be securely stored in UK data centres with strict role-based access control. The transcription service will only have reference to the unique IDs and the audio recording will be reviewed by the PI to remove any identifying information before being shared. Patient identifiable data will not be sold to any other party and will not be shared with any organisation unless they are a partner in the study and have an appropriate information sharing agreement in place. Records of consent will be kept for 3 years after the publication of final study results, but no other personally identifiable information will be stored beyond the end of the study.

IPD sharing plan summary

Stored in non-publicly available repository, Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		03/07/2024	29/07/2024	Yes	No
Basic results			22/11/2023	No	No
HRA research summary			28/06/2023	No	No
Participant information sheet	version 3.0		08/11/2021	No	Yes
Protocol file	version 1.0	17/05/2021	08/11/2021	No	No