
Plan Overview

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Title: Project 922727: Transforming Eye Care Services: Evaluating The Feasibility And Utility Of Performing Glaucoma Assessments Directly Within Care-homes And Geriatric Clinics

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Template: DCC Template

Project abstract:

Problem

By 2050, 1M people will live in UK care-homes. One-in-ten will have an eye disease called glaucoma, which requires regular hospital assessments. Many will struggle to attend these hospital appointments, and the hospitals themselves will face considerable strain.

Solution

Recently, co-applicant Sancy Low (consultant ophthalmologist at Guy's & St Thomas') developed a new care model, in which care-homes, optometrists, GPs, and ophthalmologists all work together to perform vision assessments directly within care-homes. Such in-home vision assessments have proven effective for other eye conditions (cataracts, age related macular degeneration): allowing for faster assessments, fewer follow-up appointments, and reduced costs.

However, glaucoma still remains difficult to assess outside of hospitals. This is particularly unfortunate as glaucoma is a chronic disease that requires lifelong monitoring, yet patients often remain stable for many years at a time. It is simply not sensible or sustainable for all glaucomatous care home residents to be traveling to hospital once or twice a year, only to be told that no change in treatment is required.

Accordingly, applicants at City, University of London (CITY), together with industry partners Irida Health, have assembled a battery of portable tests for assessing glaucoma. This includes low-cost devices for assessing vision, as well as third-party devices for measuring eye pressure. Additional software allows these measures to be automatically uploaded to a secure cloud-based server for review by an ophthalmologist.

The present grant shall combine these two strands of inquiry: integrating the glaucoma assessment tools developed by CITY/Irida Health, into the collaborative, in-home eye care model developed by Guy's. The long-term goal is to minimize unnecessary hospital visits.

Together with co-applicant Tania Kalsi (Geriatrician & Geriatric Service Lead for Guy's), we shall also investigate whether these same portable tests can be used to preemptively identify older individuals (both existing care-home residents and also the wider public) at risk of falls, as part of the Guy's ongoing falls prevention program.

Aims and Objectives

With this grant we shall quantify the feasibility, acceptability, reliability, and value-for-money of (1) a novel, care-home based glaucoma assessment pathway, and (2) a fall-risk screening program.

Impact

This work shall evidence more efficient and effective methods of glaucoma management & fall prevention. For the ~100,000 UK care-home residents with glaucoma expected by 2050, such changes may allow for more frequent and convenient glaucoma monitoring, while simultaneously reducing the strain on overstretched hospital eye services.

ID: 135580

Start date: 01-04-2024

End date: 31-03-2026

Last modified: 20-10-2023

Grant number / URL: ARHVF2402\13

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Data Collection

What data will you collect or create?

Numerical (scientific) data pertaining to the measured visual abilities and eye health of participant, stored in primarily in .xml and .csv text files, as well as .jpg fundus photos.

How will the data be collected or created?

Using previously developed & validated research tools.

Documentation and Metadata

What documentation and metadata will accompany the data?

Data and their units of measurement will be made clear in column headings (.csv files) and in mark-up tags (.xml files). An overview of the data, including its contents and potential uses, will be given by a published "Data in Brief" manuscript.

Ethics and Legal Compliance

How will you manage any ethical issues?

Data will be deidentified. Whilst stored on local devices data are encrypted and the device itself password protected. Participants will be provided informed written consent regarding preservation and sharing.

How will you manage copyright and Intellectual Property Rights (IPR) issues?

Data will be owned by City, University of London. Anonymised results will be made available via an open access data repository.

Storage and Backup

How will the data be stored and backed up during the research?

During data collection, de-identified data are stored locally on the test device, and also uploaded (via 5G) to a secure cloud based server with multiple in-built redundancies. After the project is complete, anonymised data will be archived using an established open source repository (e.g., Zenodo)

How will you manage access and security?

Nobody outside of the core study team will have access to the data, without the express consent of the PI. Access will be managed via password protected encrypted servers, with 2 factor authentication required for highly sensitive documents.

Selection and Preservation

Which data are of long-term value and should be retained, shared, and/or preserved?

Anonymised test results will be shared online indefinitely via an open access data repository. Paperwork (e.g., consent forms) will be retained for the period mandated by university research policy, and then disposed of accordingly.

What is the long-term preservation plan for the dataset?

See previous.

Data Sharing

How will you share the data?

See previous.

Are any restrictions on data sharing required?

No. (NB: no personal identifying information will be shared.)

Responsibilities and Resources

Who will be responsible for data management?

Pete Jones (PI)

What resources will you require to deliver your plan?

No additional resources required.